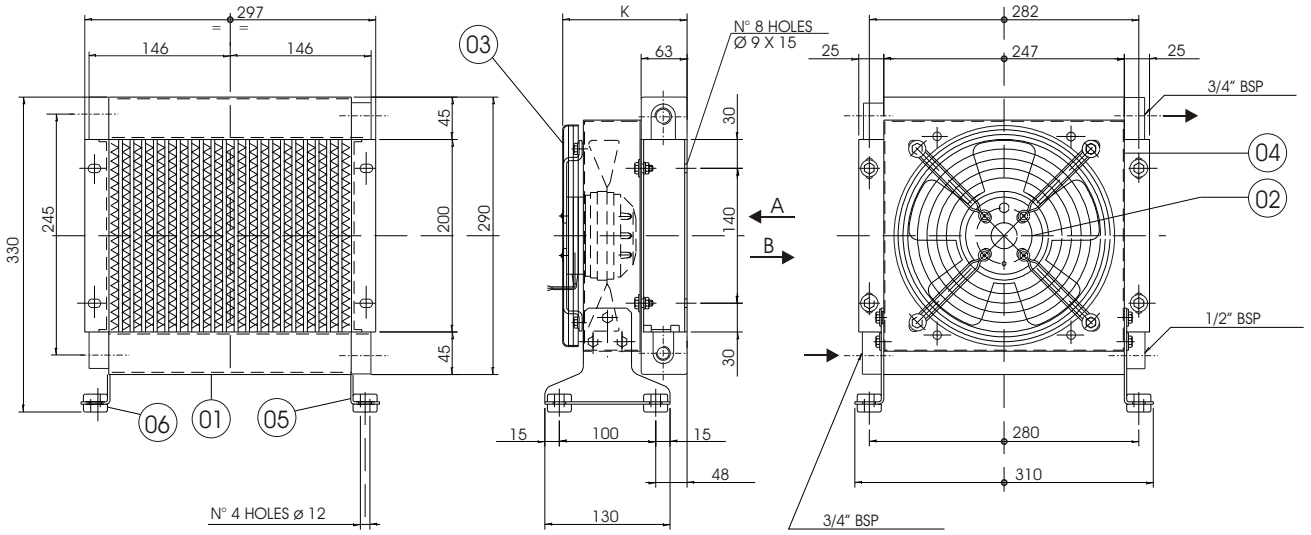
Air/oil coolers series CSL1

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Weel.	dB (A)	K mm.
CSL 1.12.0.00	12	DC	3100	0.100	225	67	145
CSL 1.24.0.00	24	DC	3100	0.100	225	67	145
CSL 1.22.0.00	230	50/60	2740/3120	0.050/0.061	200	68	170
CSL 1.38.0.00	230/400	50/60	2800/3150	0.053/0.056	200	68	170



COOLER TECHNICAL DATA

Max working Pressure	:20 bar
Max working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	+ 75°C
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

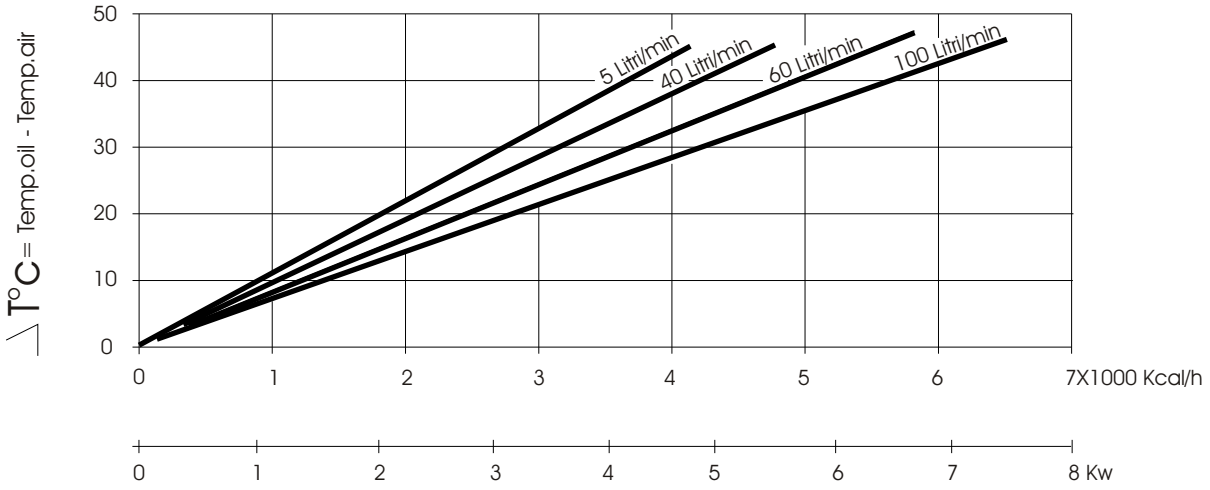
SPARE PARTS

Pos.	Description	Code
	CSL 1.12.0.00	
01	Cooler	CSL1.00.0.00
02	Fan Motor(Air Flow Suction)	10.70100 .1
02	Fan Motor(Air Flow Blowing)	10.70102 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008.0
06	Shock Adsorbe	20.80000 .1
	CSL 1.22.0.00	
01	Cooler	CSL1.00.0.00
02	Fan Motor(Air Flow Suction)	10.70002 .1
02	Fan Motor(Air Flow Blowing)	10.70004 .1
03	Safety Guard	09.70050 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

SPARE PARTS

Pos.	Description	Code
	CSL 1.24.0.00	
01	Cooler	CSL1.00.0.00
02	Fan Motor(Air Flow Suction)	10.70101 .1
02	Fan Motor(Air Flow Blowing)	10.70103 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 1.38.0.00	
01	Cooler	CSL1.00.0.00
02	Fan Motor(Air Flow Suction)	10.70001 .1
02	Fan Motor(Air Flow Blowing)	10.70003 .1
03	Safety Guard	09.70050 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

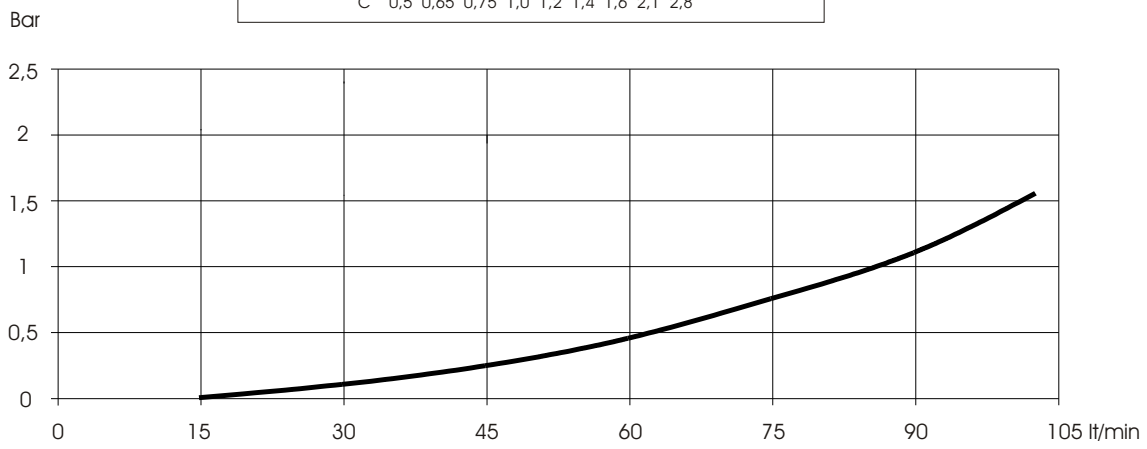
THERMIC EFFICIENCY



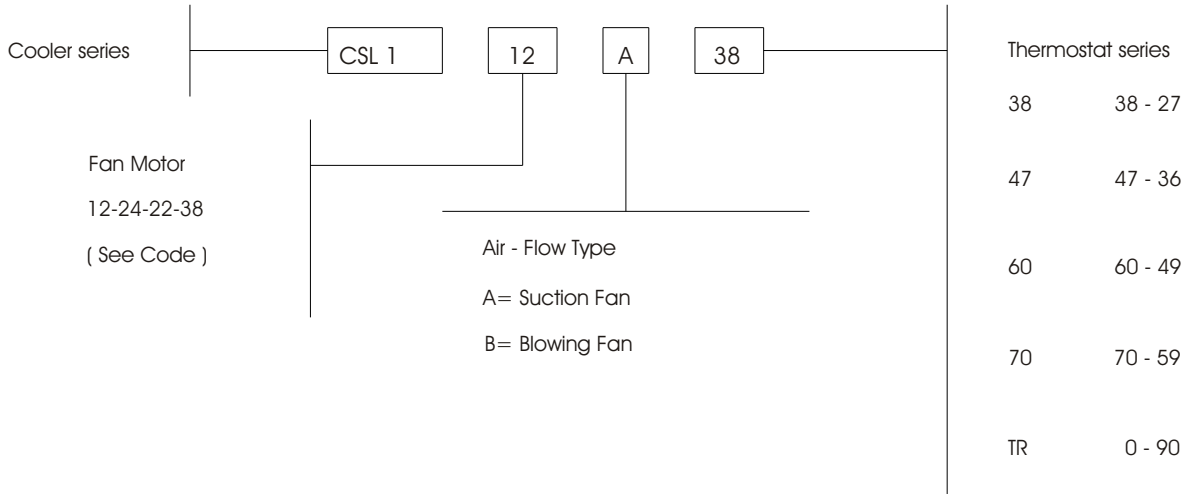
PRESSURE DROP

In order to know different viscosity , please multiply temp.oil x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION



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MANUALE DI USO E MANUTENZIONE SCAMB. CALORE CSL-CSA-CSB-D00000

INSTALLAZIONE

Gli scambiatori di calore aria/olio vengono normalmente utilizzati per il raffreddamento di impianti oleodinamici collegati sulla linea di scarico dove la pressione di esercizio non supera i 20bar (massima ammessa per gli scambiatori aria/olio).
Nel caso in cui la pressione di scarico superi i 20bar (moltiplicazione di portata, viscosità olio), gli scambiatori vengono inseriti nei Sistemi di Raffreddamento Autonomo dotati di pompa di ricircolo e by-pass.
E' consigliabile montare gli scambiatori su antivibranti ed effettuare il collegamento di ingresso e uscita olio con tubi flessibili.
Gli scambiatori dovranno essere installati in modo che non vi siano ostacoli alla potata dell'aria: pertanto la distanza posteriore e quella anteriore deve essere pari o superiore al raggio della ventola montata (schema 2). Se l'impianto oleodinamico è posto in ambienti dove la temperatura dell'olio è soggetta ad elevata escursione termica è consigliabile montare una valvola di by-pass in considerazione che con basse temperature la viscosità dell'olio aumenta sensibilmente provocando oltre a forti perdite di carico anche, nella maggior parte dei casi, il superamento della pressione massima ammessa (schema 1).

COLLEGAMENTO PARTE ELETTRICA

Assicurarsi che la tensione V, la frequenza Hz e il senso di rotazione dell'elettroventola siano come indicato nella targhetta posta in modo visibile sugli scambiatori.
Seguire attentamente quanto descritto nello schema elettrico allegato. (schema n.3)

MANUTENZIONE LATO ARIA

Scollegare elettricamente lo scambiatore; smontare il convogliatore, l'elettroventola e l'eventuale termostato.
Tutte le impurità possono essere rimosse con un getto d'acqua calda, prestando attenzione che la direzione dello stesso sia parallela alle alette, per facilitare la fuoriuscita dello sporco.

MANUTENZIONE LATO OLIO

Scollegare idraulicamente lo scambiatore; flussarlo contro corrente con sostanze sgrassanti non aggressive per l'alluminio. L'intensità dello sporco determinerà la durata di tale operazione che poterà variare dai 15 ai 30 minuti.
Nel caso non fosse sufficiente ripetere più volte l'operazione.

USE AND MAINTENANCE HEAT EXCHANGER CSL-CSA-CSB-D00000

INSTALLATION

Air/oil heat exchanges are generally used for cooling oleo dynamic equipments linked on the exhaust line where the exercise pressure isn't over 20 bar (max pressure admitted for air/oil heat exchangers)
. If the exhaust pressure is over 20 bar (flow multiplication, oil viscosity) the heat exchangers are placed into independent cooling systems with recirculation pump and by-pass.
It' s advisable to mount the heat exchangers on anti-vibrations and to link inlets and outlets with flexible tubing.
The heat exchangers must be installed in order that there aren't obstacles to the airflow: the anterior and posterior distance has to be as much or superior to the radius of the fan mounted (scheme 2). If the oleo dynamic equipment is placed in environments where the oil temperature is subject to high temperature range it's advisable to mount a by-pass valve since with low temperatures oil viscosity rises considerably causing high pressure drops that, in most cases, are bigger than the max pressure allowed. (Scheme 1)

ELECTRIC PART LINKING

Please be sure that Tension V, frequency Hz and rotation direction of the electric fan are as shown by the plate mounted on the heat exchangers.
Follow accurately what's written in the electric scheme attached (Scheme 3).

AIR SIDE MAINTENANCE

Disconnect electrically the heat exchanger; disassemble the conveyor, electric fan and thermostat (if present).
All the impurities can be removed with a warm water jet paying attention that its direction is parallel to the fins to help with the discharge of the dirt.

OIL SIDE MAINTENANCE

Disconnect hydraulically he heat exchanger; flux against the flow the heat exchanger with degreasing substances not aggressive for aluminium. The intensity of the dirt will determine the duration of this operation that usually lasts from 15 to 30 minutes.
In case the desired cleaning isn't achieved repeat the operation as many times ad needed.

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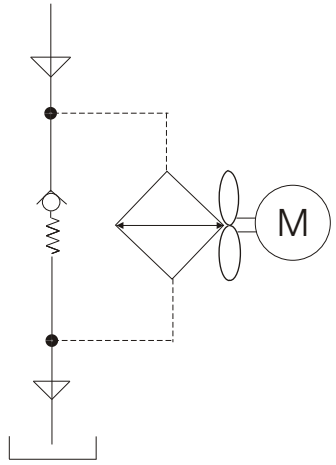
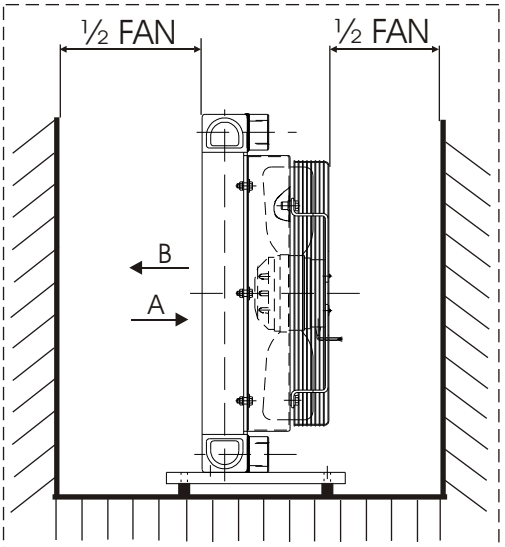
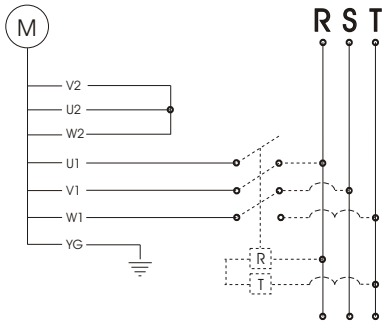


SCHEMA n°1



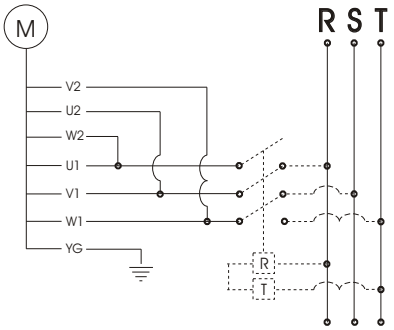
SCHEMA n°2

COLLEGAMENTO ELETTRICO 400 AC TRIF
400 AC THREEPHASE. ELECTRIC WIRING



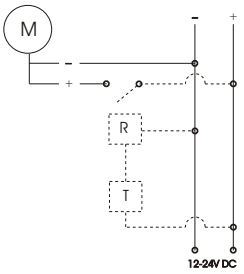
T= TERMOSTATO / THERMOSTAT
U1= NERO / BLACK
U2= VERDE / GREEN
V1= BLU / BLUE
V2= BIANCO / WHITE
W1= MARRONE / BROWN
W2= GIALLO / YELLOW
YG= TERRA / GROUND
R= RELE' / RELAY

COLLEGAMENTO ELETTRICO 230 AC TRIF
230 AC THREEPHASE. ELECTRIC WIRING



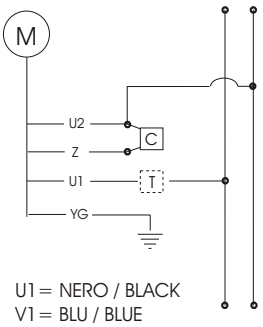
T= TERMOSTATO / THERMOSTAT
U1= NERO / BLACK
U2= VERDE / GREEN
V1= BLU / BLUE
V2= BIANCO / WHITE
W1= MARRONE / BROWN
W2= GIALLO / YELLOW
YG= TERRA / GROUND
R= RELE' / RELAY

COLLEGAMENTO ELETTRICO 12-24 DC
12-24 DC. ELECTRIC WIRING



R= RELE' / RELAY
T= TERMOSTATO / THERMOSTAT

COLLEGAMENTO ELETTRICO 230 AC MON
230 AC MON. ELECTRIC WIRING

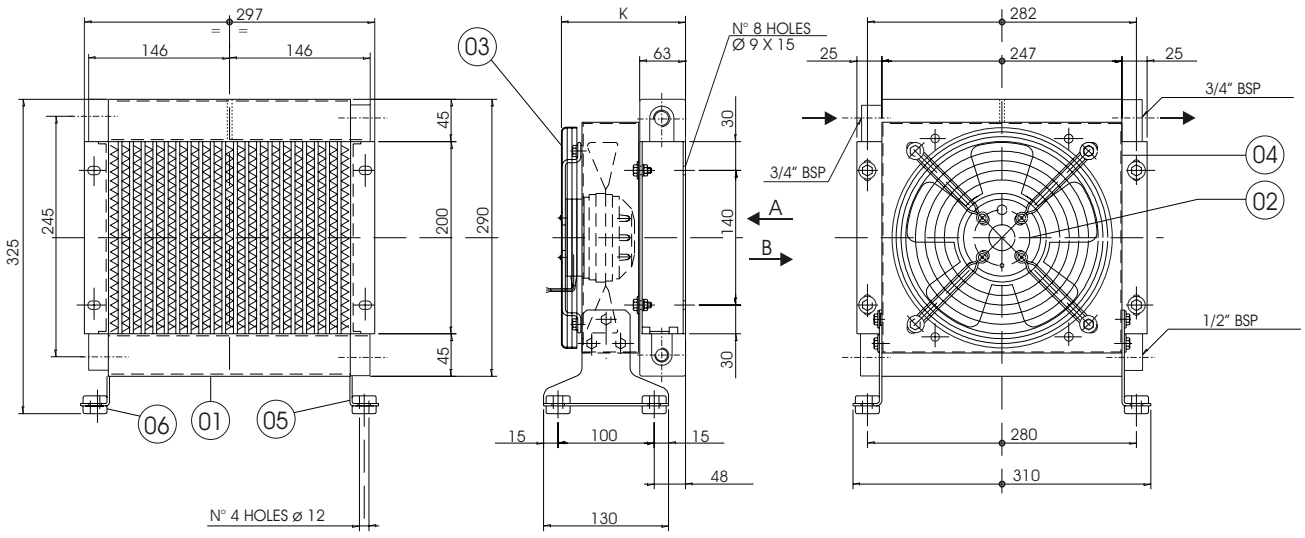


U1= NERO / BLACK
V1= BLU / BLUE
W1= MARRONE / BROWN
YG= TERRA / GROUND
T= TERMOSTATO / THERMOSTAT

SCHEMA n°3

Air/oil coolers series CSL1 2PASS

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Weel.	dB (A)	K mm.
CSL 1.12.0.00 2	12	DC	3100	0.100	225	67	145
CSL 1.24.0.00 2	24	DC	3100	0.100	225	67	145
CSL 1.22.0.00 2	230	50/60	2740/3120	0.050/0.061	200	68	170
CSL 1.38.0.00 2	230/400	50/60	2800/3150	0.053/0.056	200	68	170



COOLER TECHNICAL DATA

Max working Pressure	:20 bar
Max working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

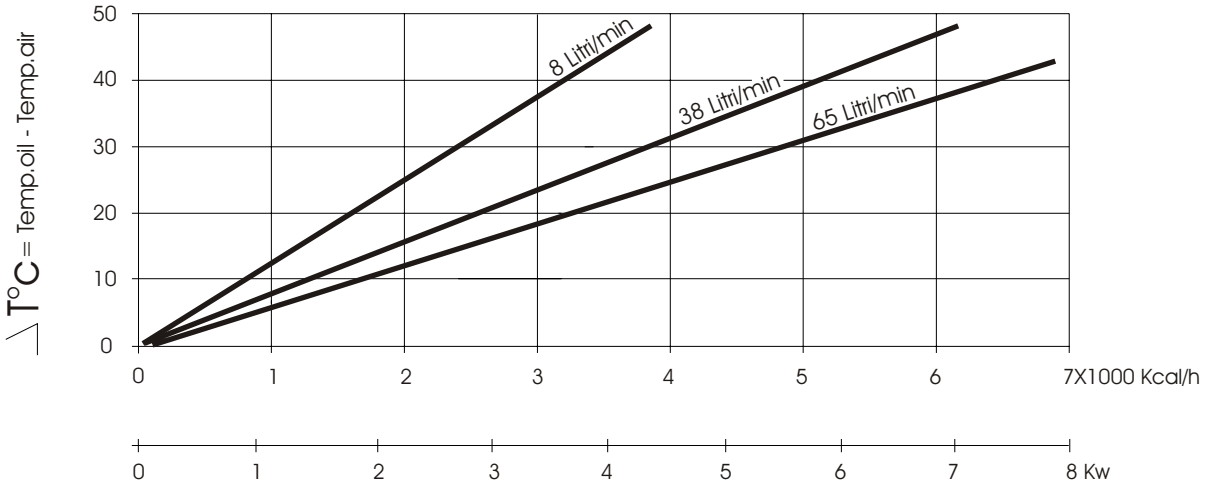
SPARE PARTS

Pos.	Description	Code
	CSL 1.12.0.00 2	
01	Cooler	CSL1.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70100 .1
02	Fan Motor(Air Flow Blowing)	10.70102 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008.0
06	Shock Adsorbe	20.80000 .1
	CSL 1.22.0.00 2	
01	Cooler	CSL1.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70002 .1
02	Fan Motor(Air Flow Blowing)	10.70004 .1
03	Safety Guard	09.70050 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

SPARE PARTS

Pos.	Description	Code
	CSL 1.24.0.00 2	
01	Cooler	CSL1.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70101 .1
02	Fan Motor(Air Flow Blowing)	10.70103 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 1.38.0.00 2	
01	Cooler	CSL1.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70001 .1
02	Fan Motor(Air Flow Blowing)	10.70003 .1
03	Safety Guard	09.70050 .1
04	Cowl	15.65005 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

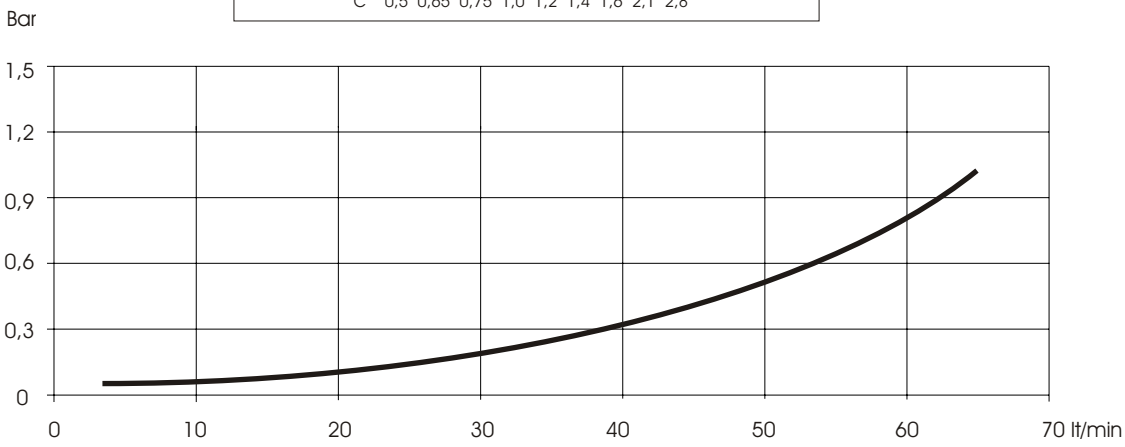
THERMIC EFFICIENCY



PRESSURE DROP

In order to know different viscosity , please multiply temp.oil x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL1 2P — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

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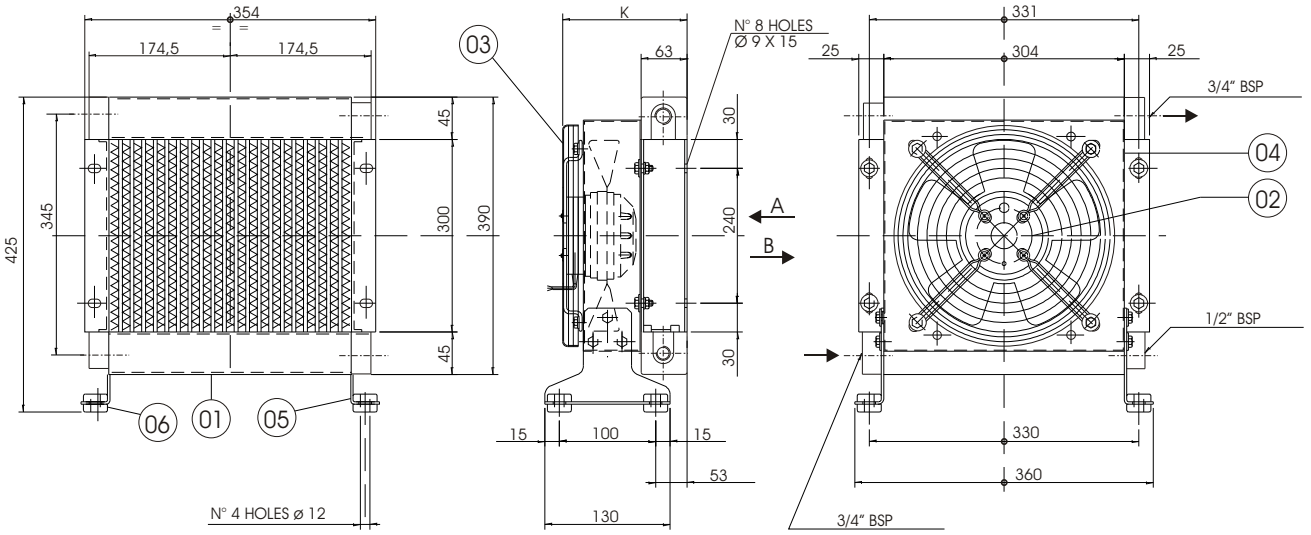
Air/oil coolers series CSL 2

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 2.12.0.00	12	DC	3350	0.125	255	67	155
CSL 2.24.0.00	24	DC	3350	0.125	255	67	155
CSL 2.22.0.00	230	50/60	2550/2750	0.115/0.155	250	68	155/170
CSL 2.38.0.00	230/400	50/60	2650/2900	0.110/0.160	250	68	155/170



COOLER TECHNICAL DATA

Max Working Pressure	: 20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatbile Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

CSL 2.12.0.00

Pos.	Description	Code
01	Cooler	CSL2.00.0.00
02	Fan Motor(Air Flow Suction)	10.70104.1
02	Fan Motor(Air Flow Blowing)	10.70106.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

CSL 2.24.0.00

Pos.	Description	Code
01	Cooler	CSL2.00.0.00
02	Fan Motor(Air Flow Suction)	10.70105 .1
02	Fan Motor(Air Flow Blowing)	10.70107 .1
04	Cowl	15.65006 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

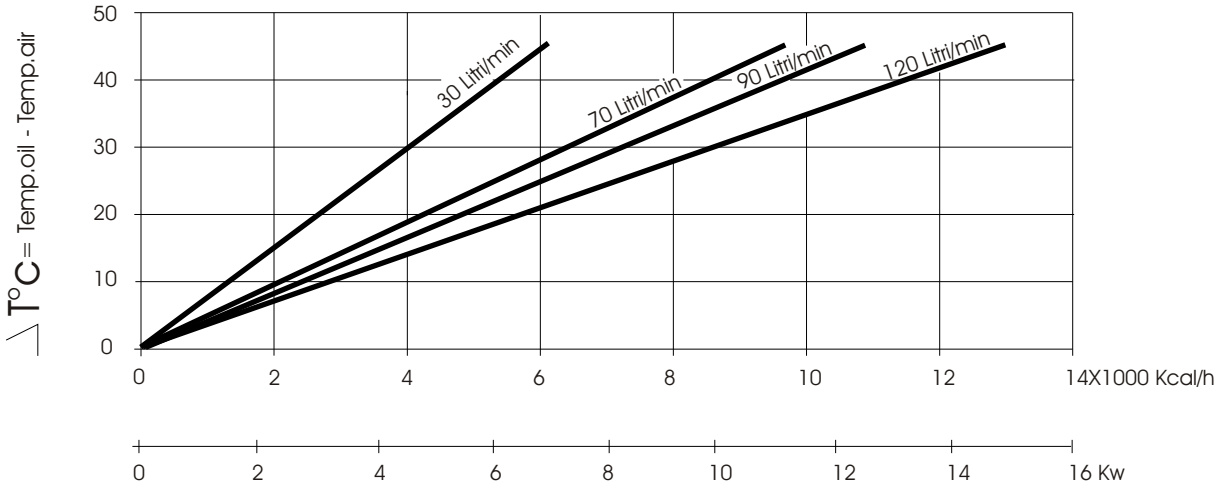
CSL 2.22.0.00

Pos.	Description	Code
01	Cooler	CSL2.00.0.00
02	Fan Motor(Air Flow Suction)	10.70006.1
02	Fan Motor(Air Flow Blowing)	10.70008.1
03	Safety Guard(Air Flow Suction)	09.70051.1
03	Safety Guard(Air Flow Blowing)	09.70072.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

CSL 2.38.0.00

Pos.	Description	Code
01	Cooler	CSL2.00.0.00
02	Fan Motor(Air Flow Suction)	10.70005.1
02	Fan Motor(Air Flow Blowing)	10.70007.1
03	Safety Guard(Air Flow Suction)	09.70051.1
03	Safety Guard(Air Flow Blowing)	09.70072.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

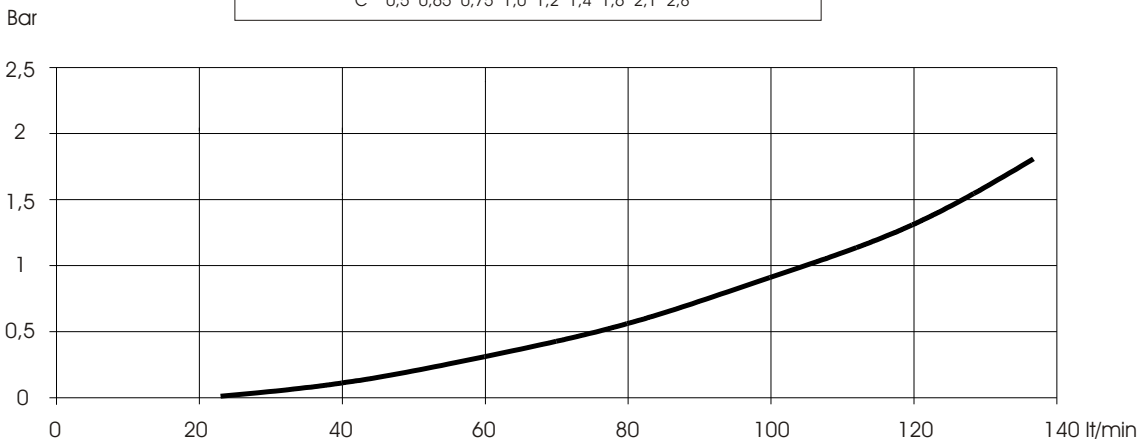
THERMIC EFFICIENCY



PRESSURE DROP

In order to know different viscosity , please multiply temp.oil x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 2 — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

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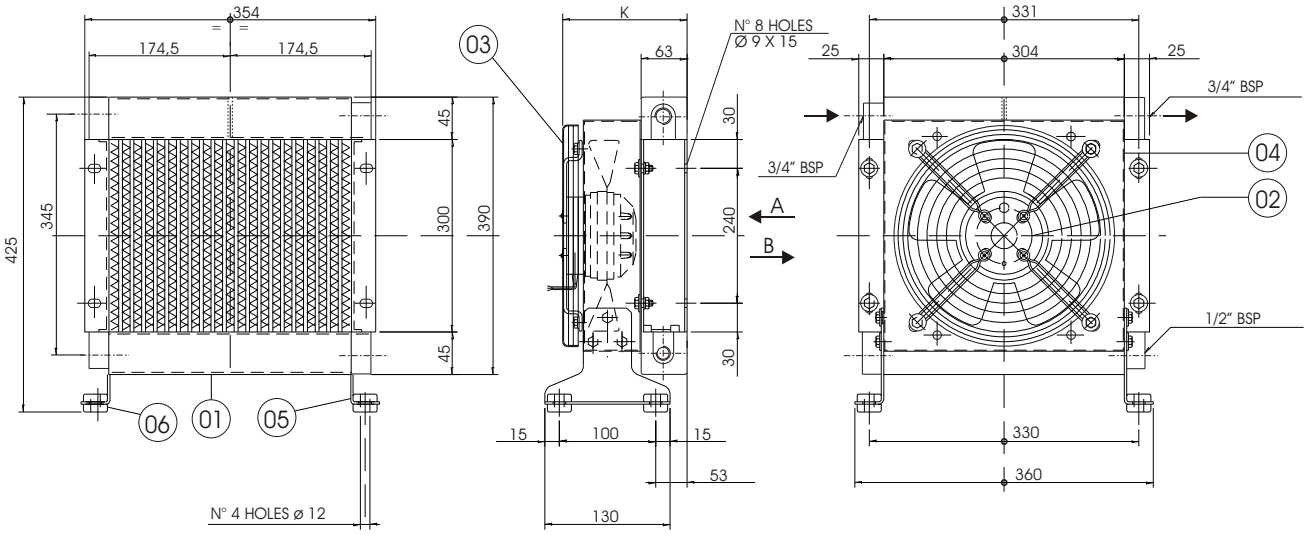
Air/oil coolers series CSL 2 2PASS

Code	Tension V	Frequency Hz	Rpm	Power Kw	Dia.Fan Well mm.	dB (A)	K mm.
CSL 2.12.0.00 2	12	DC	3350	0.125	255	67	155
CSL 2.24.0.00 2	24	DC	3350	0.125	255	67	155
CSL 2.22.0.00 2	230	50/60	2550/2750	0.115/0.155	250	68	155/170
CSL 2.38.0.00 2	230/400	50/60	2650/2900	0.110/0.160	250	68	155/170



COOLER TECHNICAL DATA

Max Working Pressure	: 20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatbile Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

CSL 2.12.0.00 2

Pos.	Description	Code
01	Cooler	CSL2.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70104.1
02	Fan Motor(Air Flow Blowing)	10.70106.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

CSL 2.24.0.00 2

Pos.	Description	Code
01	Cooler	CSL2.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70105 .1
02	Fan Motor(Air Flow Blowing)	10.70107 .1
04	Cowl	15.65006 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

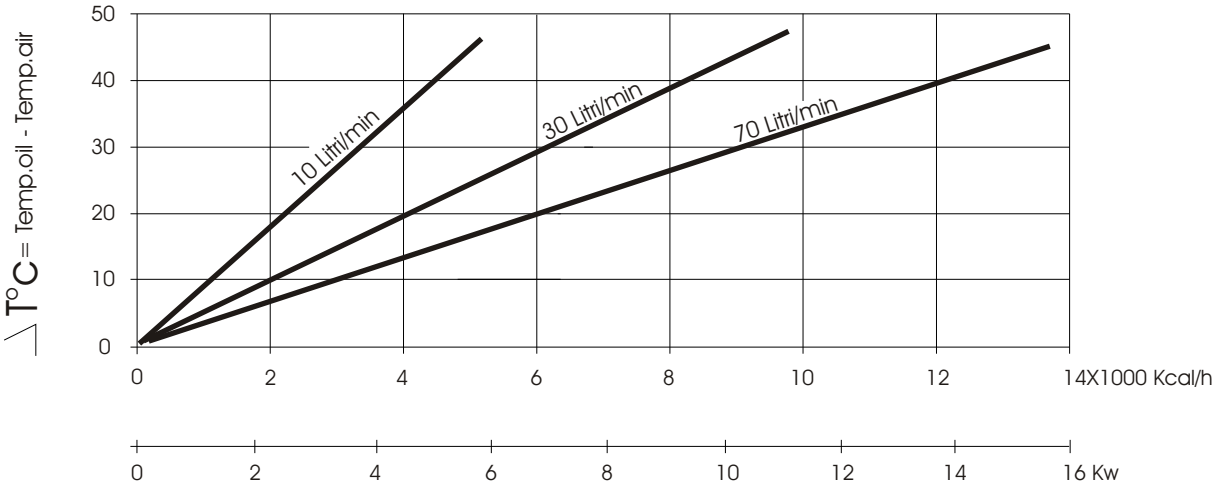
CSL 2.22.0.00 2

Pos.	Description	Code
01	Cooler	CSL2.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70006.1
02	Fan Motor(Air Flow Blowing)	10.70008.1
03	Safety Guard(Air Flow Suction)	09.70051.1
03	Safety Guard(Air Flow Blowing)	09.70072.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

CSL 2.38.0.00 2

Pos.	Description	Code
01	Cooler	CSL2.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70005.1
02	Fan Motor(Air Flow Blowing)	10.70007.1
03	Safety Guard(Air Flow Suction)	09.70051.1
03	Safety Guard(Air Flow Blowing)	09.70072.1
04	Cowl	15.65006.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

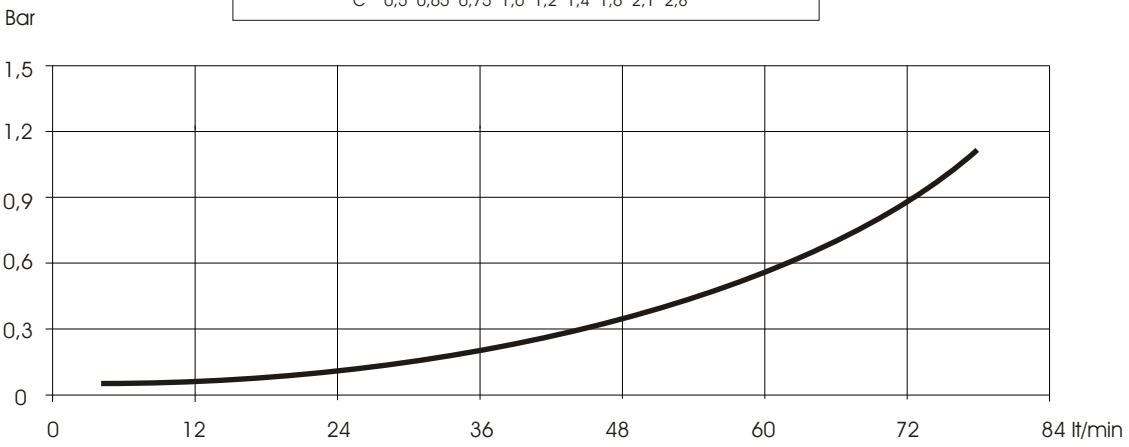
THERMIC EFFICIENCY



PRESSURE DROP

In order to know different viscosity , please multiply temp.oil x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 2 2P — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

Technical characteristic herein mentioned are not binding and it can be modified from CIESSE without any notice

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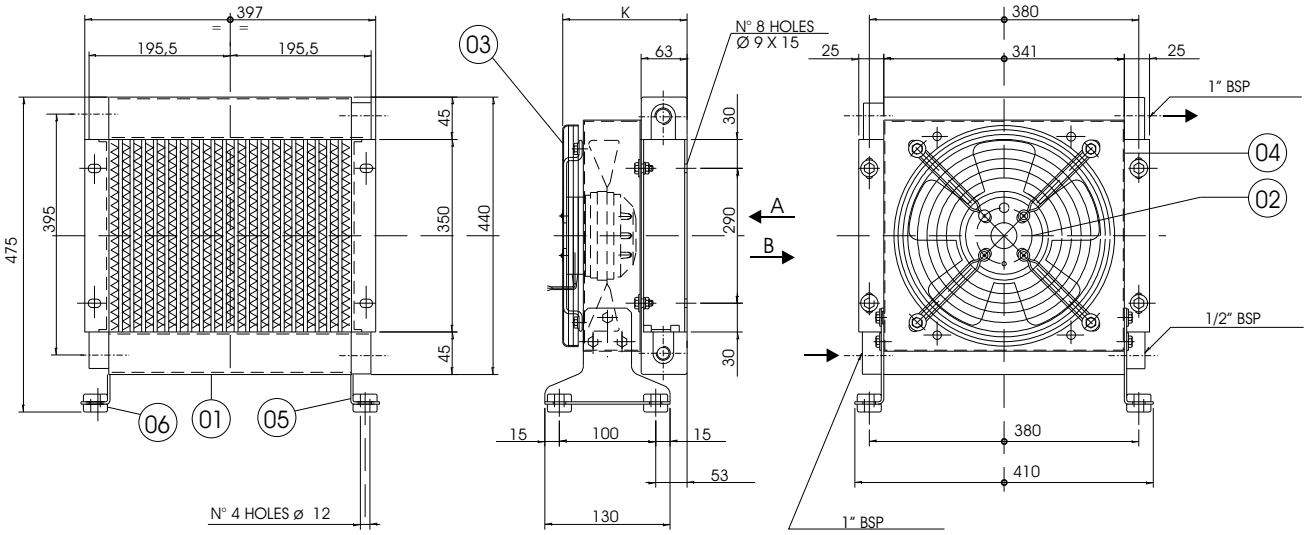
Air/oil coolers series CSL 3

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 3.12.0.00	12	DC	2300	0.125	305	69	170
CSL 3.24.0.00	24	DC	2300	0.125	305	69	170
CSL 3.22.0.00	230	50/60	2650/2950	0.160/0.205	300	70	155/170
CSL 3.38.0.00	230/400	50/60	2650/2800	0.180/0.270	300	70	155/170



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	+ 75°C
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

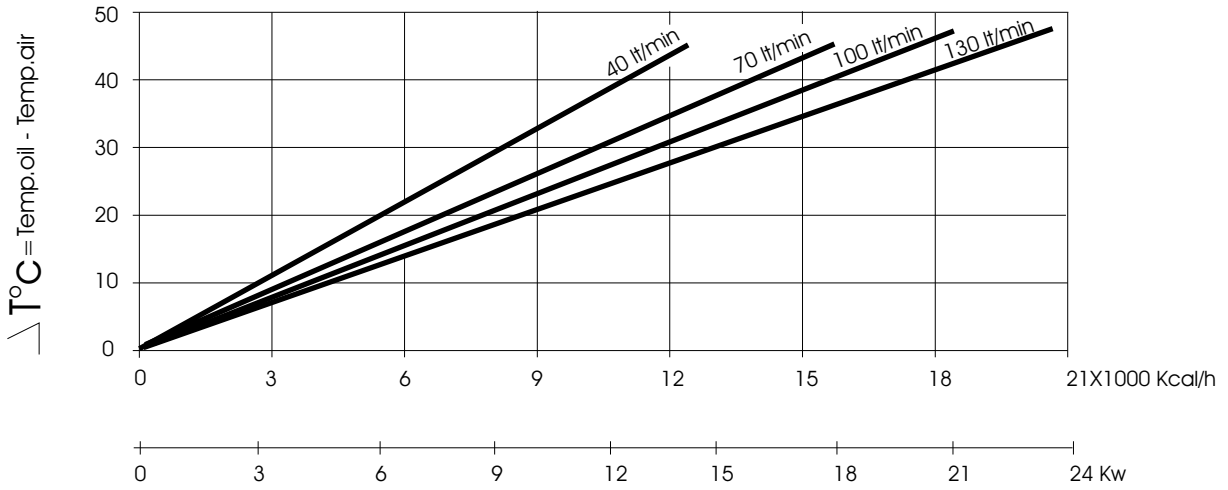
SPARE PARTS

Pos.	Description	Code
	CSL 3.12.0.00	
01	Cooler	CSL3.00.0.00
02	Fan Motor(Air Flow Suction)	10.70108 .1
02	Fan Motor(Air Flow Blowing)	10.70110 .1
04	Cowl	15.65007.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1
	CSL 3.22.0.00	
01	Cowl	CSL3.00.0.00
02	Fan Motor(Fan Motor Suction)	10.70010.1
02	Fan Motor(Fan Motor Blowing)	10.70012.1
03	Safety Guard(Fan Motor Suction)	09.70052.1
04	Cowl	15.65007.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

SPARE PARTS

Pos.	Description	Code
	CSL 3.24.0.00	
01	Cooler	CSL3.00.0.00
02	Fan Motor(Air Flow Suction)	10.70109 .1
02	Fan Motor(Air Flow Blowing)	10.70111 .1
04	Cowl	15.65007 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 3.38.0.00	
01	Cooler	CSL3.00.0.00
02	Fan Motor(Air Flow Suction)	10.70009 .1
02	Fan Motor(Air Flow Blowing)	10.70011 .1
03	Safety Guard(Air Flow Suction)	09.70052 .1
04	Cowl	15.65007 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

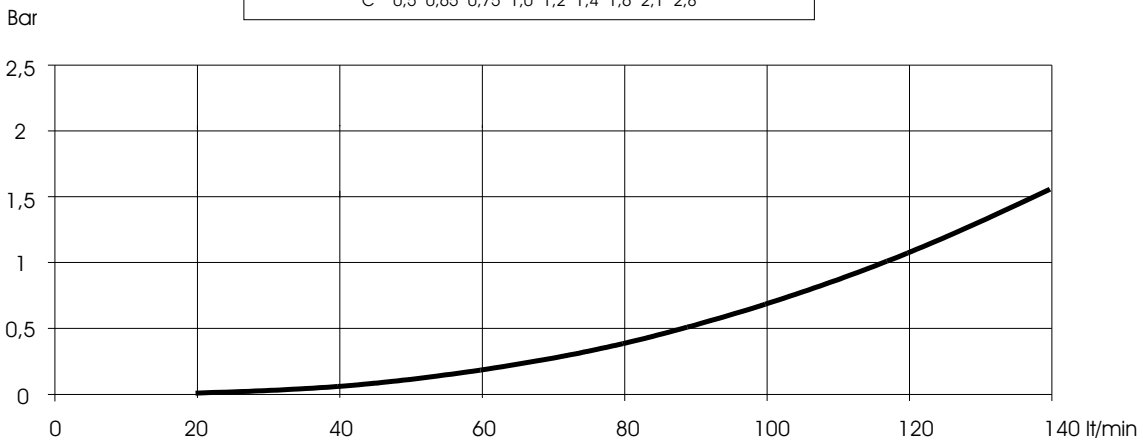
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 3 — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

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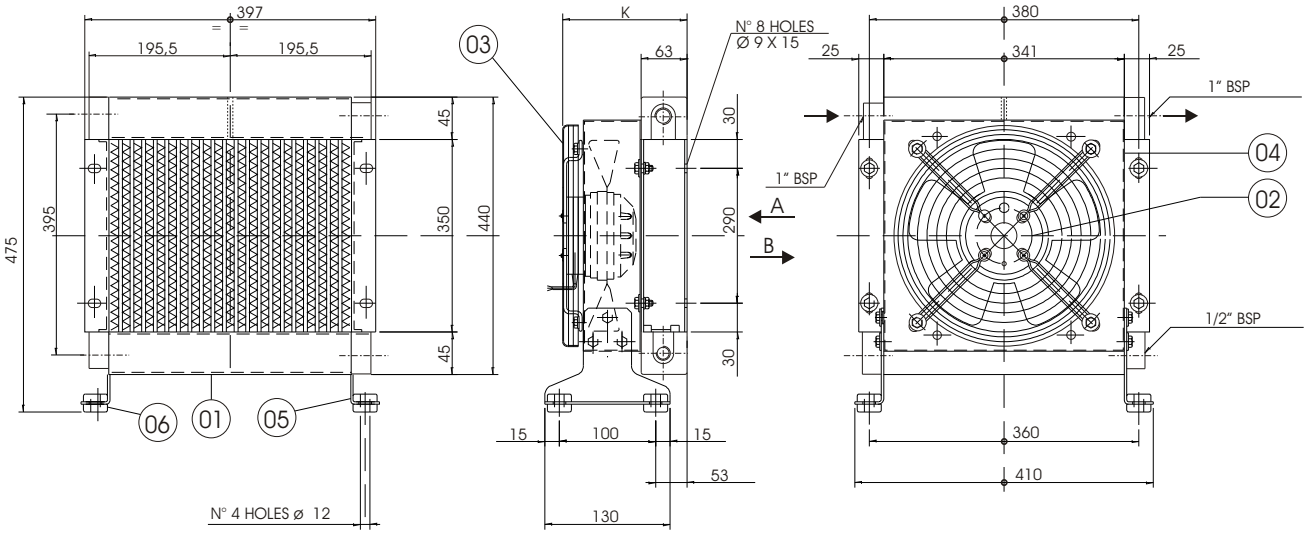
Air/oil coolers series CSL 3 2PASS

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 3.12.0.00 2	12	DC	2300	0.125	305	69	170
CSL 3.24.0.00 2	24	DC	2300	0.125	305	69	170
CSL 3.22.0.00 2	230	50/60	2650/2950	0.160/0.205	300	70	155/170
CSL 3.38.0.00 2	230/400	50/60	2650/2800	0.180/0.270	300	70	155/170



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

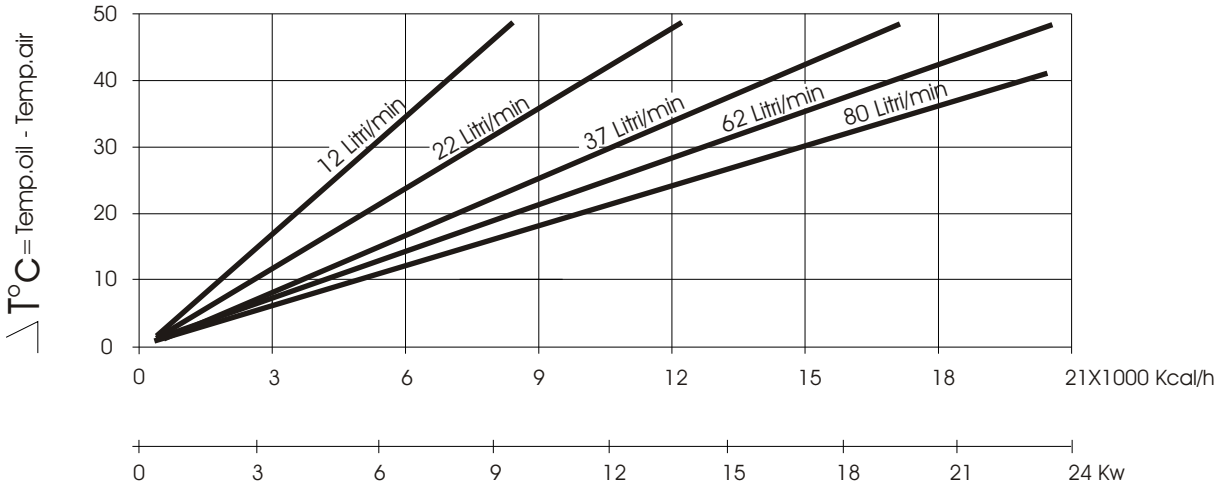
SPARE PARTS

Pos.	Description	Code
	CSL 3.12.0.00 2	
01	Cooler	CSL3.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70108 .1
02	Fan Motor(Air Flow Blowing)	10.70110 .1
04	Cowl	15.65007.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1
	CSL 3.22.0.00 2	
01	Cowl	CSL3.00.0.00 2
02	Fan Motor(Fan Motor Suction)	10.70010.1
02	Fan Motor(Fan Motor Blowing)	10.70012.1
03	Safety Guard(Fan Motor Suction)	09.70052.1
04	Cowl	15.65007.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

SPARE PARTS

Pos.	Description	Code
	CSL 3.24.0.00 2	
01	Cooler	CSL3.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70109 .1
02	Fan Motor(Air Flow Blowing)	10.70111 .1
04	Cowl	15.65007 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 3.38.0.00 2	
01	Cooler	CSL3.00.0.00 2
02	Fan Motor(Air Flow Suction)	10.70009 .1
02	Fan Motor(Air Flow Blowing)	10.70011 .1
03	Safety Guard(Air Flow Suction)	09.70052 .1
04	Cowl	15.65007 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

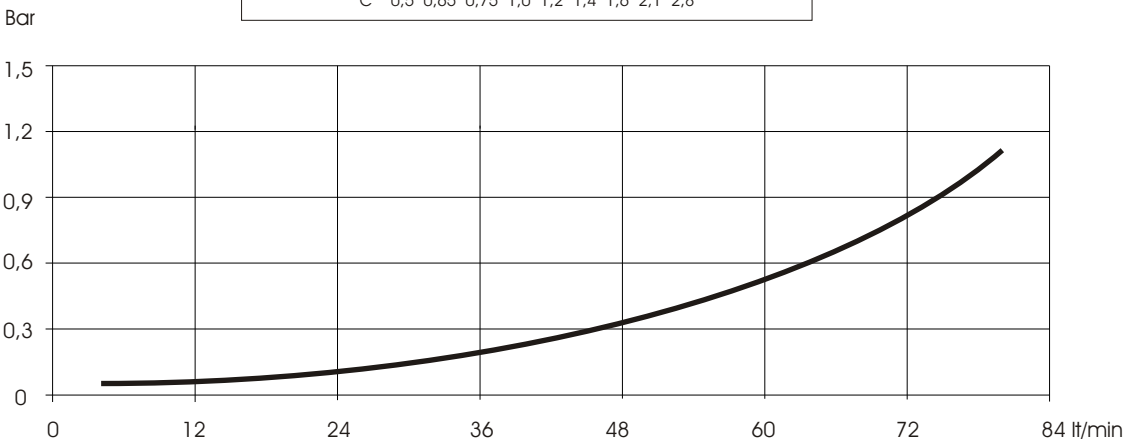
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 3 2P — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

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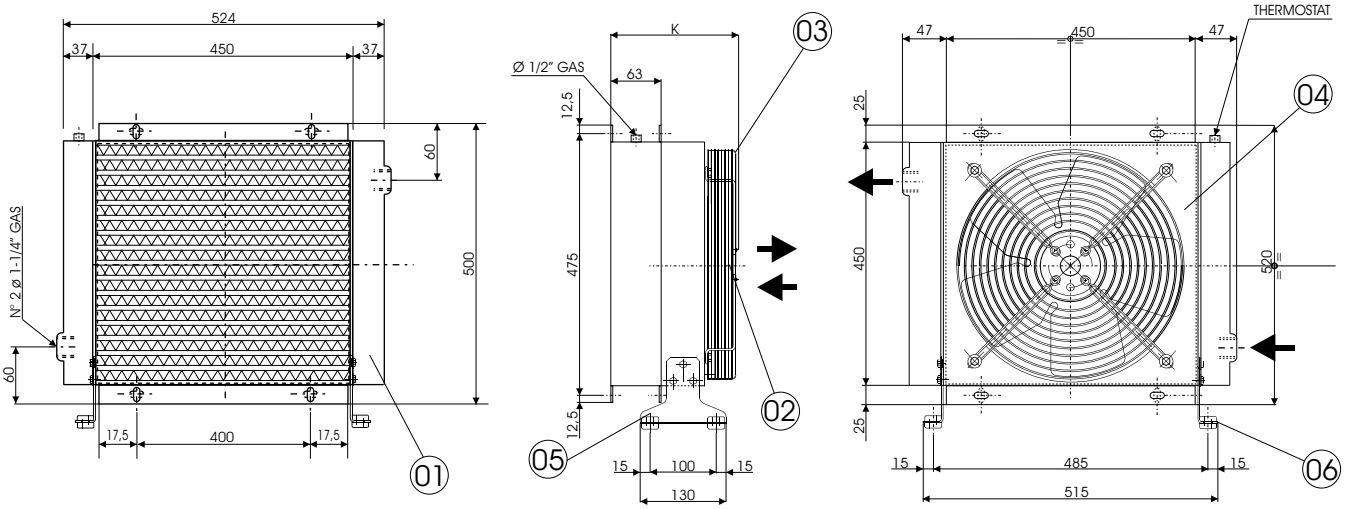
Air/oil coolers series CSL 4

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 4.12.0.00	12	DC	2300	0,125	385	67	185
CSL 4.24.0.00	24	DC	2300	0,125	385	67	185
CSL 4.22.0.00	230	50/60	1450/1700	0.160 / 0.204	400	73	243
CSL 4.38.0.00	230/400	50/60	1450/1690	0.135 / 0.185	400	72	243



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

SPARE PARTS

Pos.	Description	Code

CSL 4.12.0.00

01	Cooler	CSL4.00.0.00
02	Fan Motor(Air Flow Suction)	10.70429 .1
02	Fan Motor(Air Flow Blowing)	10.70430 .1
04	Cowl	15.65031 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

CSL 4.24.0.00

01	Cooler	CSL4.00.0.00
02	Fan Motor(Air Flow Suction)	10.70426 .1
02	Fan Motor(Air Flow Blowing)	10.70431 .1
04	Cowl	15.65031 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

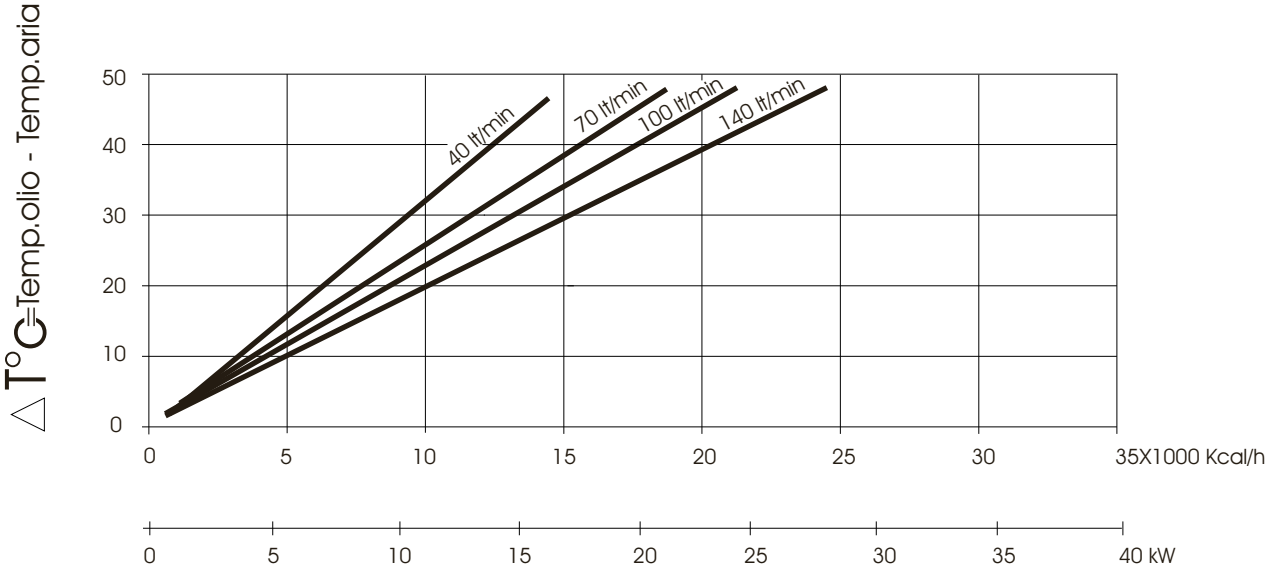
CSL 4.22.0.00

01	Cowl	CSL4.00.0.00
02	Fan Motor(Fan Motor Suction)	10.70042.1
02	Fan Motor(Fan Motor Blowing)	10.70043.1
03	Safety Guard(Fan Motor Suction)	09.70073.1
04	Cowl	15.65571.0
05	Fixing Support	15.65008.0
06	Shock Adsorber	20.80000.1

CSL 4.38.0.00

01	Cooler	CSL4.00.0.00
02	Fan Motor(Air Flow Suction)	10.70015 .1
02	Fan Motor(Air Flow Blowing)	10.70016 .1
03	Safety Guard(Fan Motor Suction)	09.70073.1
04	Cowl	15.65571 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

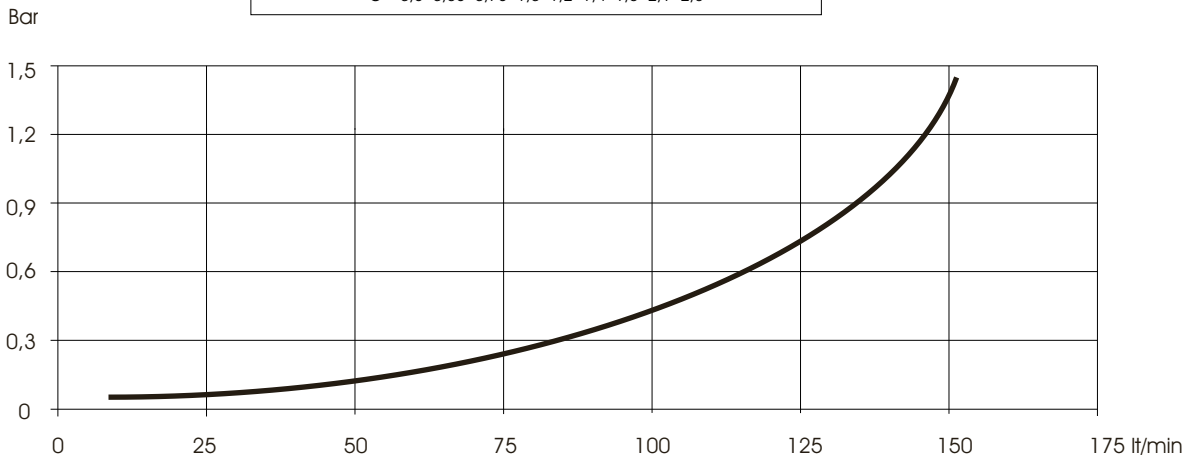
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 4 — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

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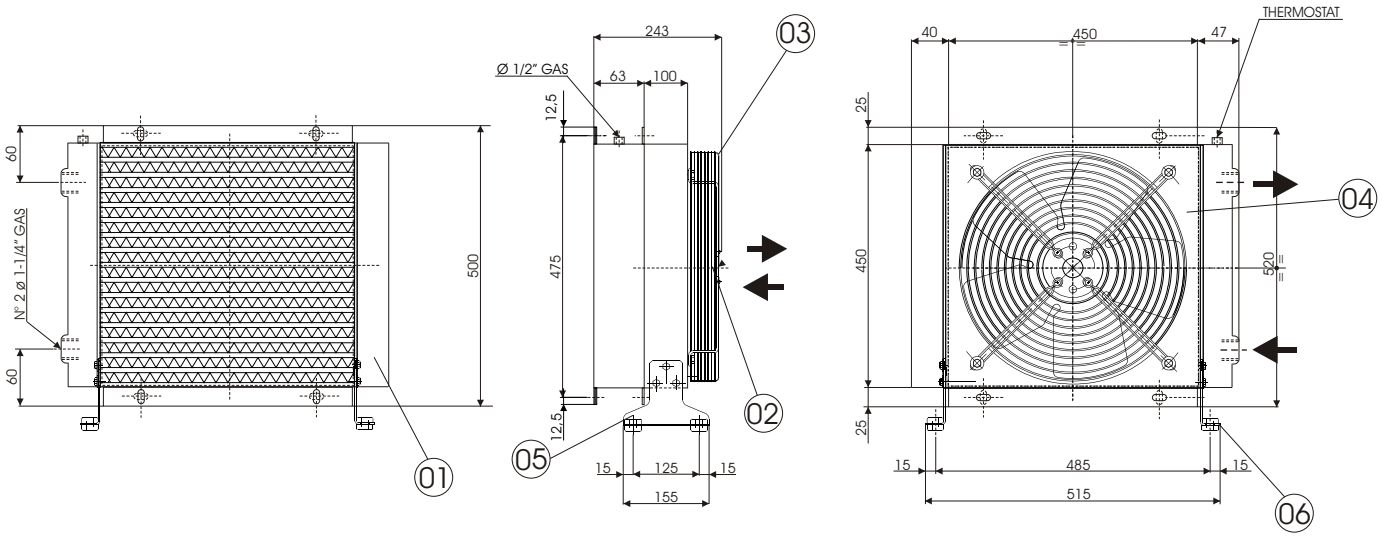
Air/oil coolers series CSL 4 2P

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 4.12.0.00 2P	12	DC	2300	0.125	385	67	185
CSL 4.24.0.00 2P	24	DC	2300	0.125	385	67	185
CSL 4.22.0.00 2P	230	50/60	1450/1700	0.160 + 0.204	400	73	243
CSL 4.38.0.00 2P	230/400	50/60	1450/1690	0.135 + 0.185	400	72	243



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

CSL 4.12.0.00 2P

Pos.	Description	Code
01	Cooler	CSL4.00.0.00 2P
02	Fan Motor(Air Flow Suction)	10.70429 .1
02	Fan Motor(Air Flow Blowing)	10.70430 .1
04	Cowl	15.65031 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

CSL 4.22.0.00 2P

Pos.	Description	Code
01	Cowl	CSL4.00.0.00 2P
02	Fan Motor(Fan Motor Suction)	10.70042 .1
02	Fan Motor(Fan Motor Blowing)	10.70043 .1
03	Safety Guard(Fan Motor Suction)	09.70073 .1
04	Cowl	15.65571 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

SPARE PARTS

Pos.	Description	Code

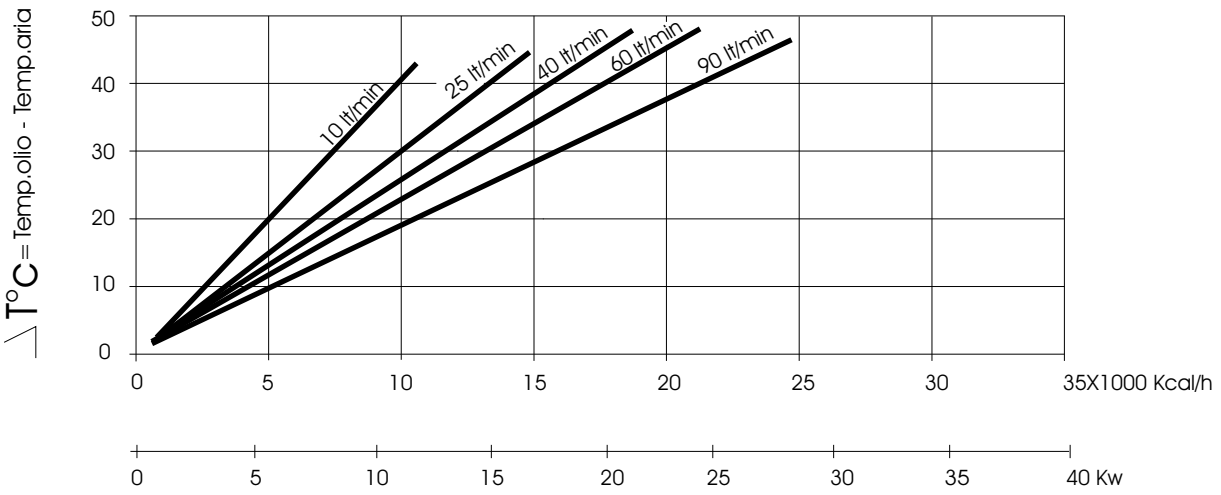
CSL 4.24.0.00 2P

Pos.	Description	Code
01	Cooler	CSL4.00.0.00 2P
02	Fan Motor(Air Flow Suction)	10.70426 .1
02	Fan Motor(Air Flow Blowing)	10.70431 .1
04	Cowl	15.65031 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

CSL 4.38.0.00 2P

Pos.	Description	Code
01	Cooler	CSL4.00.0.00 2P
02	Fan Motor(Air Flow Suction)	10.70015 .1
02	Fan Motor(Air Flow Blowing)	10.70016 .1
03	Safety Guard(Fan Motor Suction)	09.70073 .1
04	Cowl	15.65571 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

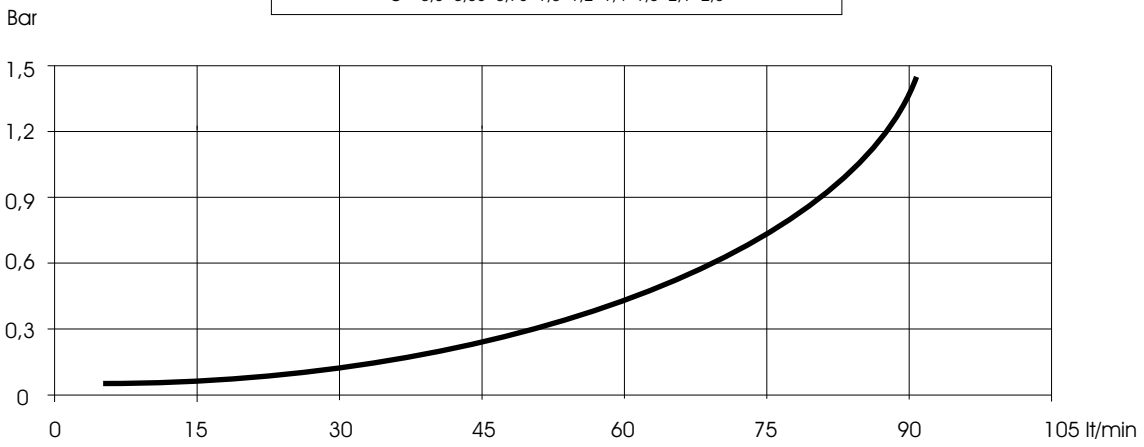
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 4 2P — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

Technical characteristic herein mentioned are not binding and it can be modified from CIESSE without any notice

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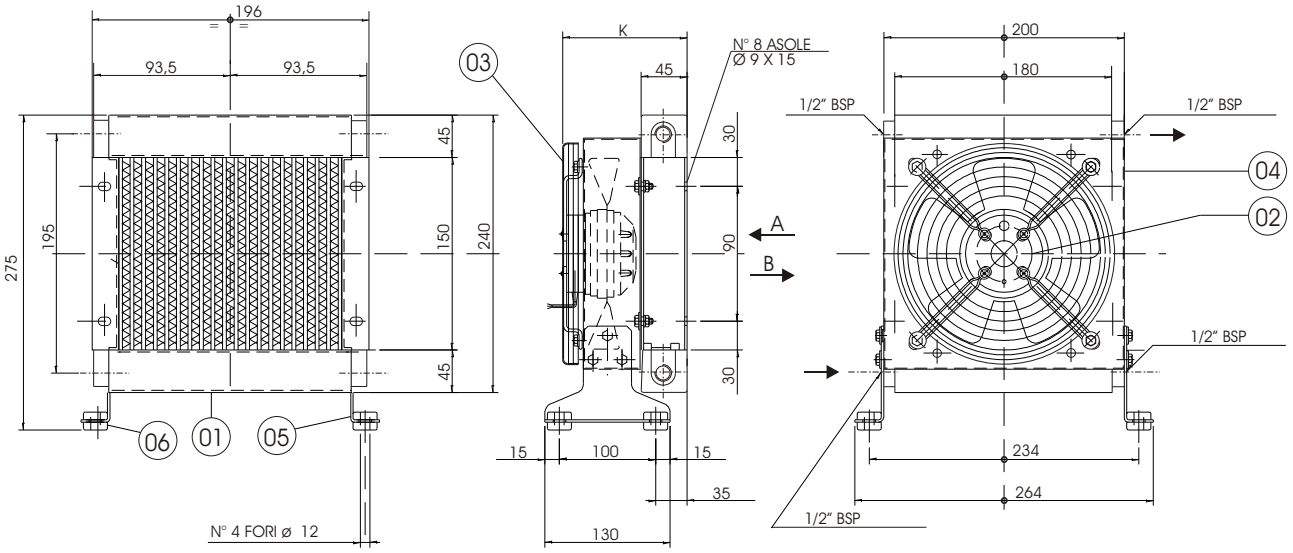
Air/oil coolers series CSL 05

	Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Weel.	dB (A)	K mm.
CSL	05.12.0.00	12	DC	4000	0.080	167	65	170
CSL	05.24.0.00	24	DC	4100	0.080	167	65	170
CSL	05.22.0.00	230	50/60	2650/2950	0.045/0.043	170	64	125
CSL	05.38.0.00	230/400	50/60	2650	0.040	170	64	125



COOLER TECHNICAL DATA

Max working Pressure	:20 bar
Max working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

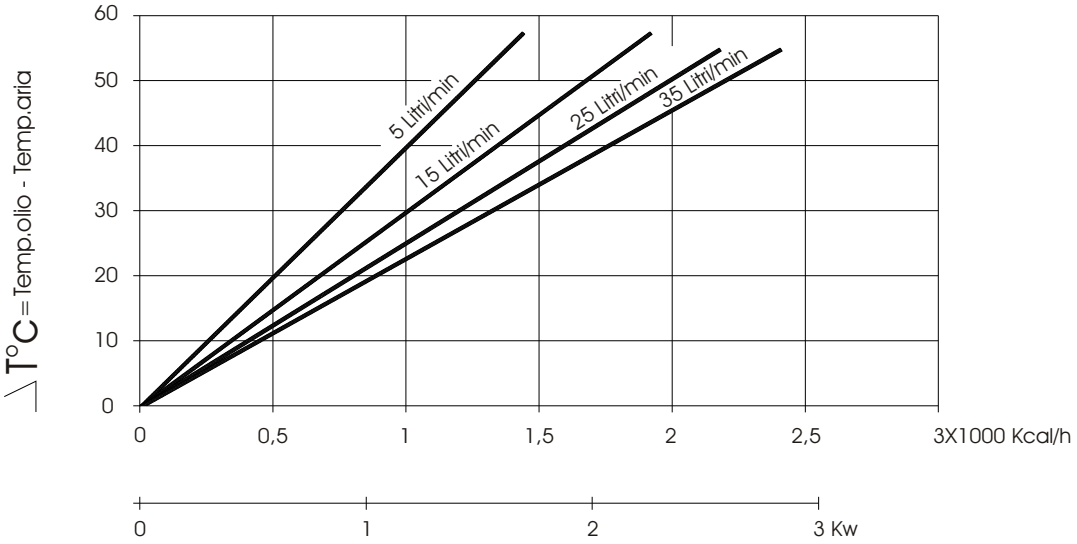
SPARE PARTS

Pos.	Description	Code
	CSL 05.12.0.00	
01	Cooler	CSL05.00.0.00
02	Fan Motor(Air Flow Suction)	10.70112 .1
02	Fan Motor(Air Flow Blowing)	10.70114 .1
04	Cowl	15.65004 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 05.22.0.00	
01	Cooler	CSL05.00.0.00
02	Fan Motor(Air Flow Suction)	10.70026 .1
02	Fan Motor(Air Flow Blowing)	10.70028 .1
03	Safety Guard	09.70117 .1
04	Cowl	15.65004 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

SPARE PARTS

Pos.	Description	Code
	CSL 05.24.0.00	
01	Cooler	CSL05.00.0.00
02	Fan Motor(Air Flow Suction)	10.70113 .1
02	Fan Motor(Air Flow Blowing)	10.70115 .1
04	Cowl	15.65004 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1
	CSL 05.38.0.00	
01	Cooler	CSL05.00.0.00
02	Fan Motor(Air Flow Suction)	10.70025 .1
02	Fan Motor(Air Flow Blowing)	10.70027 .1
03	Safety Guard	09.70117 .1
04	Cowl	15.65004 .0
05	Fixing Support	15.65008 .0
06	Shock Adsorber	20.80000 .1

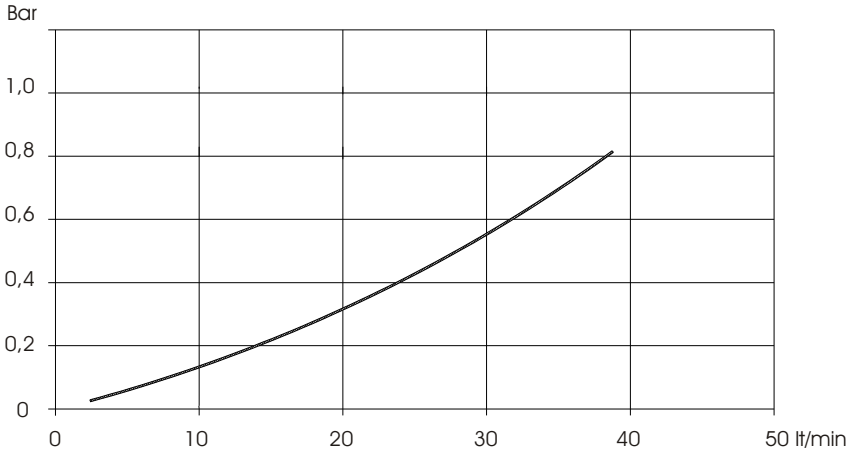
THERMIC EFFICIENCY



PRESSURE DROP

In order know different viscosity , please multiply temp.oil x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 05 — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

Technical characteristic herein mentioned are not binding and it can be modified from CIESSE without any notice.

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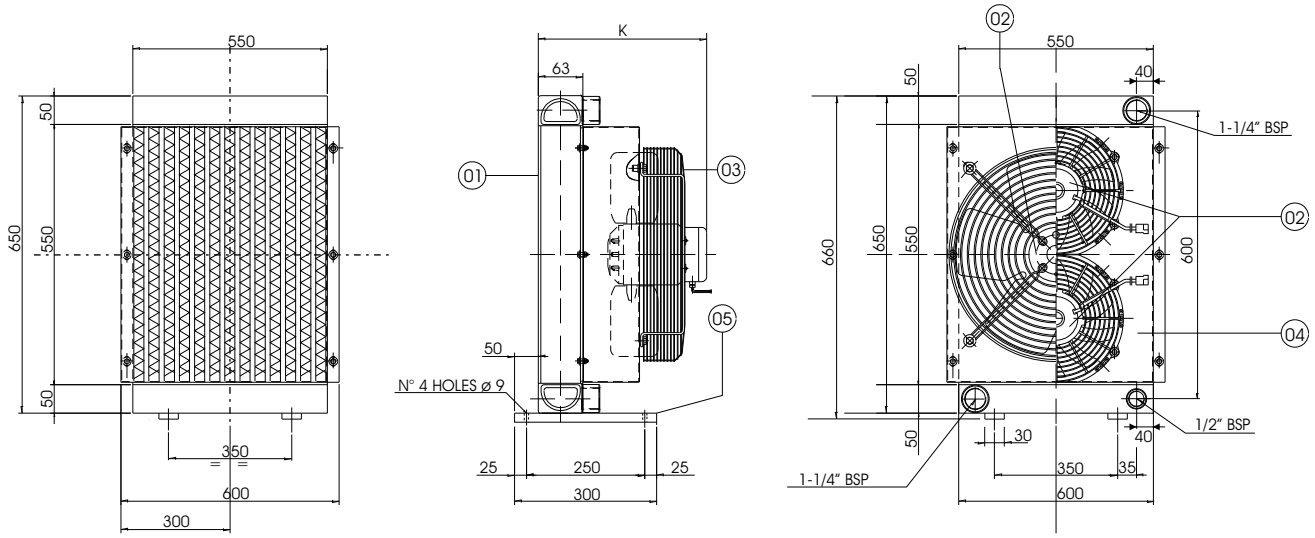
Air/oil coolers series CSL 5

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 5.12.0.00	12	DC	3350	0.125+0.125	255	74	168
CSL 5.24.0.00	24	DC	3350	0.125+0.125	255	74	168
CSL 5.38.0.00	230/400	50/60	1340	0.45	450	75	329
CSL 5.G2.0.00			800/2500	0.45	450	75	359



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

CSL 5.12.0.00

Pos.	Description	Code
01	Cooler	CSL5.00.0.00
02	Fan Motor (Air Flow Suction)	10.70104.1
02	Fan Motor (Air Flow Blowing)	10.70106.1
04	Cowl	15.65010.0
05	Fixing Support	15.65017.0

CSL 5.24.0.00

Pos.	Description	Code
01	Cooler	CSL5.00.0.00
02	Fan Motor (Air Flow Suction)	10.70105.1
02	Fan Motor (Air Flow Blowing)	10.70107.1
04	Cowl	15.66366.0
05	Fixing Support	15.65017.0

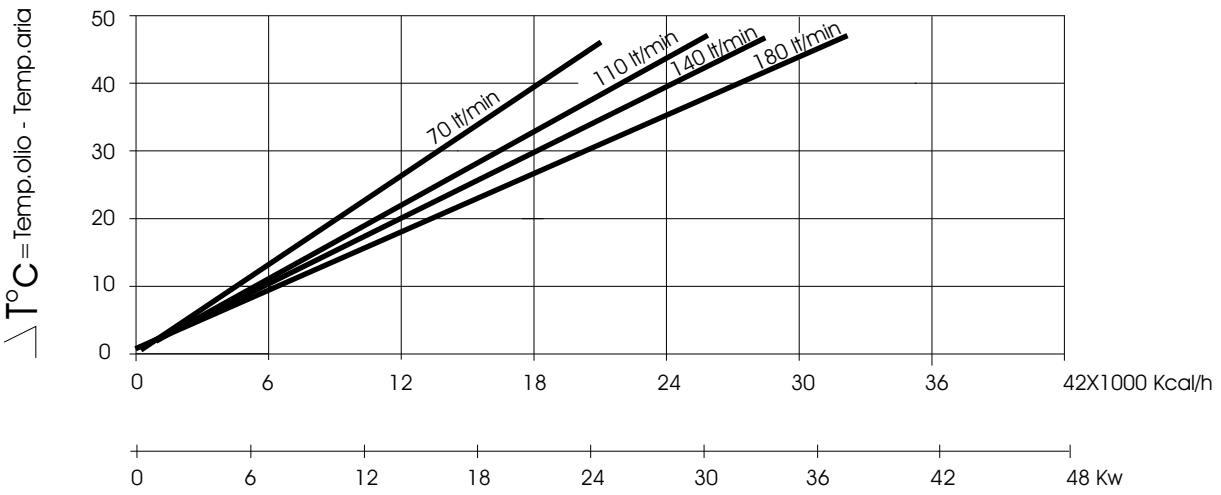
CSL 5.38.0.00

Pos.	Description	Code
01	Cooler	CSL5.00.0.00
02	Fan Motor (Air Flow Suction)	10.70017.1
02	Fan Motor (Air Flow Blowing)	10.70018.1
03	Safety Guard	10.70058.1
04	Cowl	15.65406.0
05	Fixing Support	15.65017.0

CSL 5.G2.0.00

Pos.	Description	Code
01	Cooler	CSL5.00.0.00
02	Fan Motor (Air Flow Suction)	11.70378.1
02	Fan Motor (Air Flow Blowing)	11.70379.1
03	Safety Guard	10.70009.1
04	Cowl	15.65406.0
05	Fixing Support	15.65017.0

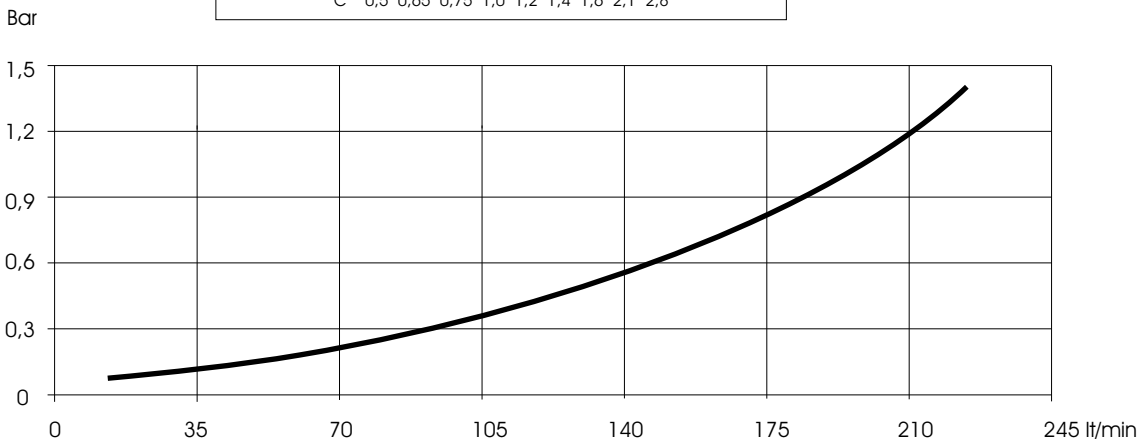
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 5 — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

Technical characteristic herein mentioned are not binding and it can be modified from CIESSE without any notice

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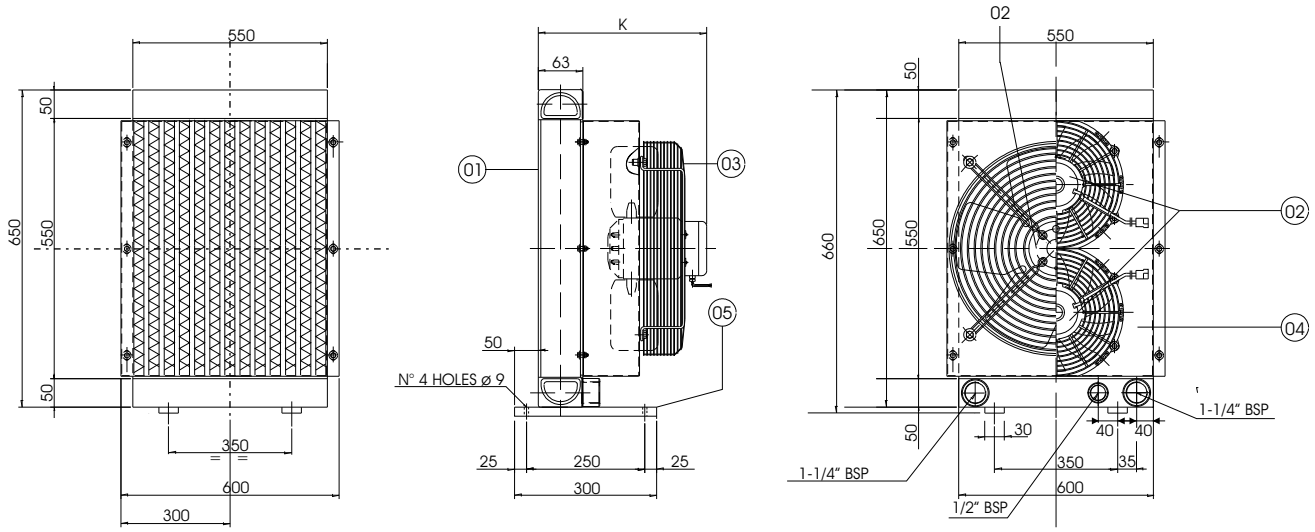
Air/oil coolers series CSL 5 2P

Code	Tension V	Frequency Hz	Rpm	Power kW	Dia.Fan Well mm.	dB (A)	K mm.
CSL 5.12.0.00 2P	12	DC	3350	0.125+0.125	255	74	168
CSL 5.24.0.00 2P	24	DC	3350	0.125+0.125	255	74	168
CSL 5.38.0.00 2P	230/400	50/60	1340	0.45	450	75	329
CSL 5.G2.0.00 2P			800/2500	0.45	450	75	359



COOLER TECHNICAL

Max Working Pressure	:20 bar
Max Working Temperature	: + 120° C
Max oil Viscosity	: 100 CST
Main Material	: Alluminium
Cooling Fluid	: Compatible Al
Colour	: Black

FAN MOTORS TECHNICAL DATA

Tension	CA: DIN IEC38	DC: 12/24V
Max Working Temperature	: + 75° C	*+ 75°C*
Min Working Temperature	: - 30° C	
Main Material	: Steel	: Fiber Glass
Motor Protection	: IP 44	: IP 64
Colour	: Black	

SPARE PARTS

Pos.	Description	Code

SPARE PARTS

Pos.	Description	Code

CSL 5.12.0.00 2P

01	Cooler	CSL5.00.0.00 2P
02	Fan Motor (Air Flow Suction)	10.70104.1
02	Fan Motor (Air Flow Blowing)	10.70106.1
04	Cowl	15.65010.0
05	Fixing Support	15.65017.0

CSL 5.24.0.00 2P

01	Cooler	CSL5.00.0.00 2P
02	Fan Motor (Air Flow Suction)	10.70105.1
02	Fan Motor (Air Flow Blowing)	10.70107.1
04	Cowl	15.66366.0
05	Fixing Support	15.65017.0

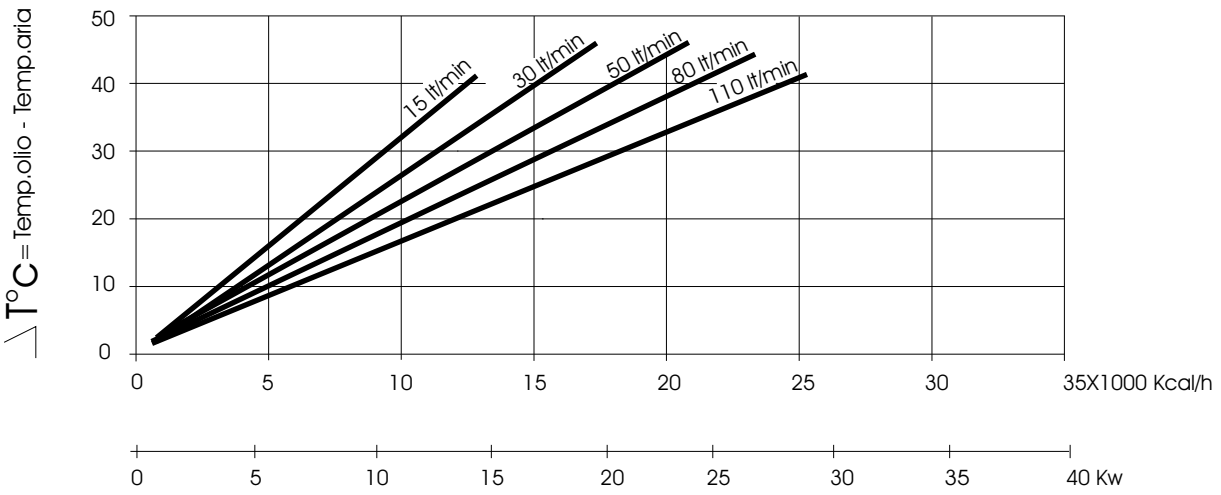
CSL 5.38.0.00 2P

01	Cooler	CSL5.00.0.00 2P
02	Fan Motor (Air Flow Suction)	10.70017.1
02	Fan Motor (Air Flow Blowing)	10.70018.1
03	Safety Guard	10.70058.1
04	Cowl	15.65406.0
05	Fixing Support	15.65017.0

CSL 5.G2.0.00 2P

01	Cooler	CSL5.00.0.00 2P
02	Fan Motor (Air Flow Suction)	11.70378.1
02	Fan Motor (Air Flow Blowing)	11.70379.1
03	Safety Guard	10.70009.1
04	Cowl	15.65406.0
05	Fixing Support	15.65017.0

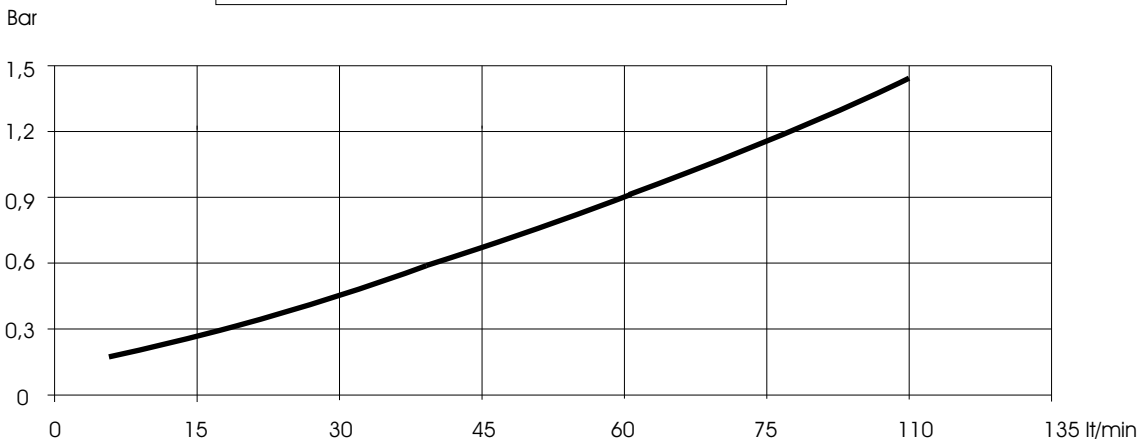
THERMIC EFFICIENCY



PRESSURE DROP

In order different viscosity , please multiply temp.x correction factor

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



CODIFICATION

Cooler series — CSL 5 2P — 12 — A — 38

Fan Motor
12-24-22-38
(See Code)

Air - Flow Type
A= Suction Fan
B= Blowing Fan

Thermostat series

38	38 - 27
47	47 - 36
60	60 - 49
70	70 - 59
TR	0 - 90

Technical characteristic herein mentioned are not binding and it can be modified from CIESSE without any notice

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Manuale di uso e manutenzione scambiatori di calore
CSL CSA CSB DOOOOO

INSTALLAZIONE
Gli scambiatori di calore aria/olio vengono normalmente utilizzati per il raffreddamento di impianti oleodinamici collegati sulla linea di scarico dove la pressione di esercizio non supera i 20bar (massima ammessa per gli scambiatori aria/olio). Nel caso in cui la pressione di scarico superi i 20bar (moltiplicazione di portata, viscosità olio), gli scambiatori vengono inseriti nei Sistemi di Raffreddamento Autonomo dotati di pompa di ricircolo e by-pass. È consigliabile montare gli scambiatori su antivibranti ed effettuare il collegamento di ingresso e di uscita olio con tubi flessibili. Gli scambiatori dovranno essere installati in modo che non vi siano ostacoli alla portata dell'aria: pertanto la distanza posteriore e quella anteriore deve essere pari o superiore al raggio della ventola montata (schema 2). Se l'impianto oleodinamico è posto in ambienti dove la temperatura dell'olio è soggetta ad elevata escursione termica è consigliabile montare una valvola by-pass in considerazione che con basse temperature la viscosità dell'olio aumenta sensibilmente provocando oltre a forti perdite di carico anche, nella maggior parte dei casi, il superamento della pressione massima ammessa (schema 1).

COLLEGAMENTO PARTE ELETTRICA
Assicurarsi che la tensione V, la frequenza Hz e il senso di rotazione dell'elettroventola siano come indicato nella targhetta posta in modo visibile sugli scambiatori. Seguire attentamente quanto descritto nello schema elettrico allegato (schema 3).

MANUTENZIONE LATO ARIA
Scollegare elettricamente lo scambiatore; smontare il convogliatore, l'elettroventola e l'eventuale termostato. Tutte le impurità possono essere rimosse con un getto d'acqua calda, prestando attenzione che la direzione dello stesso sia parallela alle alette, per facilitare la fuoriuscita dello sporco.

MANUTENZIONE LATO OLIO
Scollegare idraulicamente lo scambiatore; flussarlo contro corrente con sostanze sgrassanti non aggressive per l'alluminio. L'intensità dello sporco determinerà la durata di tale operazione che potrà variare dai 15 ai 30 minuti. Nel caso non fosse sufficiente ripetere più volte l'operazione.

Use and maintenance heat exchanger
CSL CSA CSB DOOOOO

INSTALLATION
Air/Oil heat exchangers are generally used for cooling oleo dynamic equipments linked on the exhaust line where the exercise pressure isn't over 20bar (max pressure admitted for air/oil heat exchangers). If the exhaust pressure is over 20bar (flow multiplication, oil viscosity) the heat exchangers are placed into indipendent cooling system with recirculation pump and by-pass. It's advisable to mount the heat exchangers on antivibrations and to link inlets and outlets with flexible tubing. The heat exchangers must be installed in order that there aren't obstacles tothe airflow: the anterior and posterior distance has to be as much or superior to the radius of the fan mounted (scheme 2). If the oleo dynamic equipment is placed in environments where the oil temperature is subject to high temperature range it's advisable to mount a by-pass valve since with low temperatures oil viscosity rises considerably causing high pressure drops that, in most cases, are bigger than the max pressure allowed (scheme 1).

ELECTRIC PART LINKING
Please be sure that Tension V, frequency Hz and rotation direction of the electric fan are as shown by the plate mounted on the heat exchangers. Follow accurately what's written in the electric scheme attached (schema 3).

AIR SIDE MAINTENANCE
Disconnect electrically the heat exchanger; disassemble the conveyor, electric fan and thermostat (if present). All the impurities can be removed with a warm water jet paying attention that its direction is parallel to the fins to help with the discharge of the dirt.

OIL SIDE MAINTENANCE
Disconnect hydraulically the heat exchanger; flux against the flow the heat exchanger with degreasing substances not aggressive for aluminium. The intensity of the dirt will determine the duration of this operation that usually lasts from 15 to 30 minutes. In case the desired cleaning isn't achieved repeat the operation as many times as needed.

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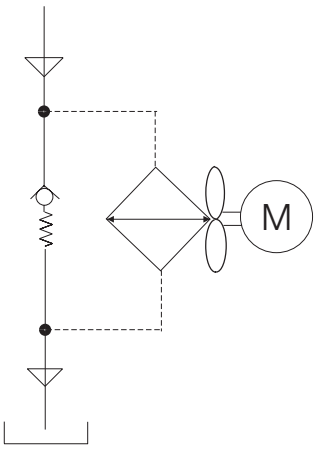
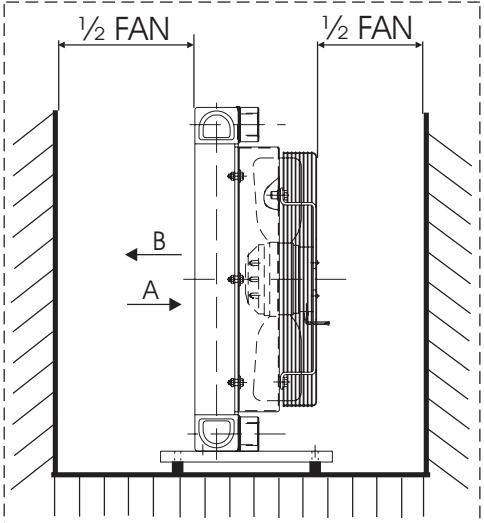
Schemi di riferimento

Outlines of reference



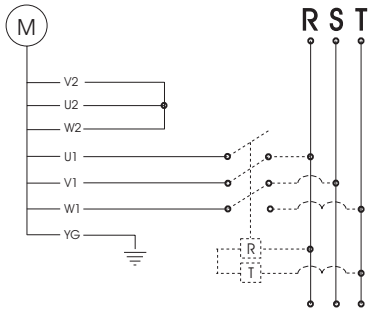
SCHEMA n°1



SCHEMA n°2

COLLEGAMENTO ELETTRICO 400 AC TRIF

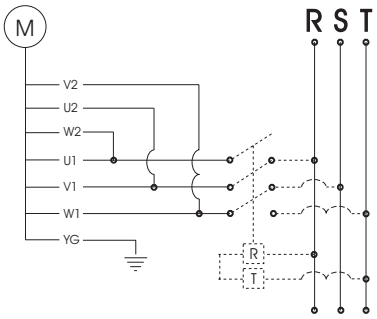
400 AC THREEPHASE. ELECTRIC WIRING



T= TERMOSTATO / THERMOSTAT
U1 = NERO / BLACK
V1 = BLU / BLUE
W1 = MARRONE / BROWN
YG= TERRA / GROUND
U2= VERDE / GREEN
V2= BIANCO / WHITE
W2= GIALLO / YELLOW
R= RELE' / RELAY

COLLEGAMENTO ELETTRICO 230 AC TRIF

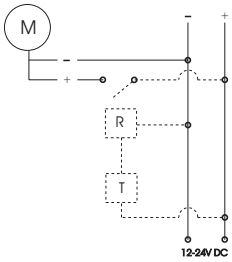
230 AC THREEPHASE. ELECTRIC WIRING



T= TERMOSTATO / THERMOSTAT
U1 = NERO / BLACK
V1 = BLU / BLUE
W1 = MARRONE / BROWN
YG= TERRA / GROUND
U2= VERDE / GREEN
V2= BIANCO / WHITE
W2= GIALLO / YELLOW
R= RELE' / RELAY

COLLEGAMENTO ELETTRICO 12-24 DC

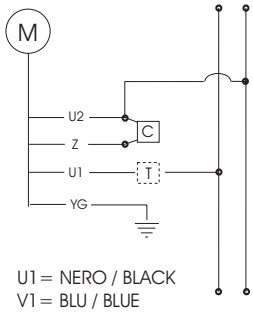
12-24 DC. ELECTRIC WIRING



R= RELE' / RELAY
T= TERMOSTATO / THERMOSTAT

COLLEGAMENTO ELETTRICO 230 AC MON

230 AC MON. ELECTRIC WIRING



U1 = NERO / BLACK
V1 = BLU / BLUE
W1 = MARRONE / BROWN
YG= TERRA / GROUND
T= TERMOSTATO / THERMOSTAT

SCHEMA n°3

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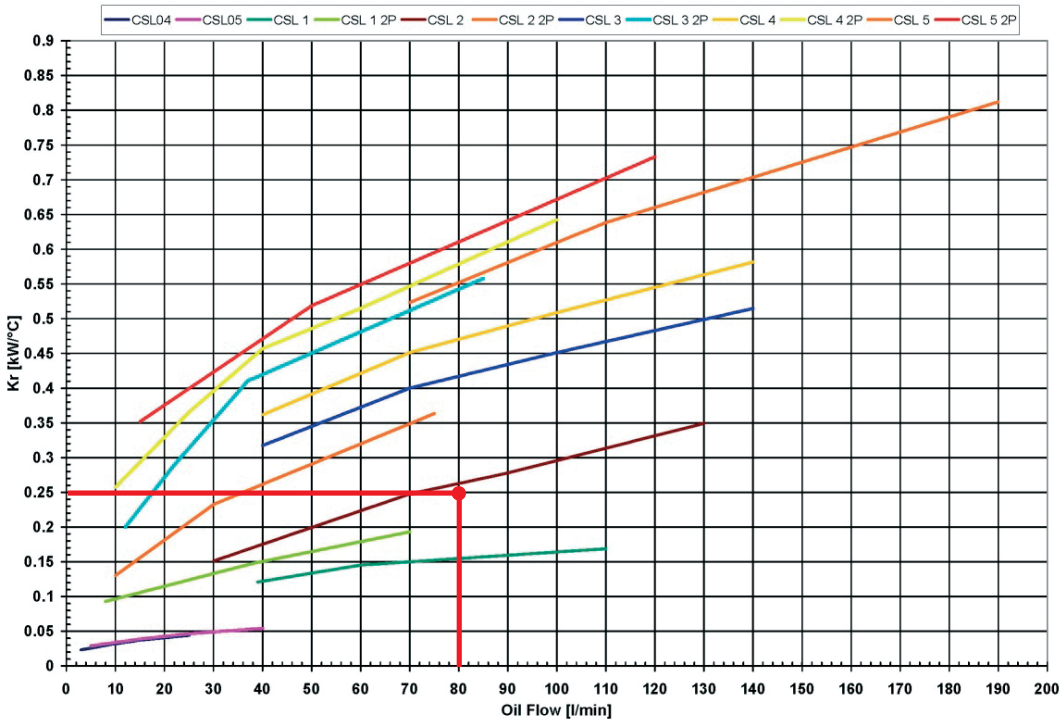
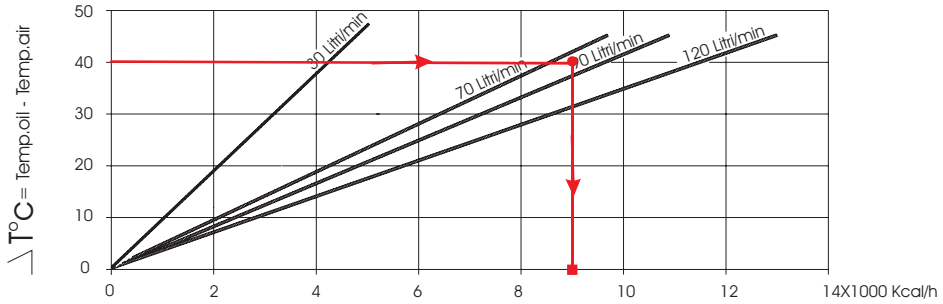
Dati disponibili / *Data* :
Potenza da dissipare / *Heat exchanged*: 10 kW
Portata di olio / *Oil flow*: 80 l/min
Differenza di tempertura / *Difference of temperture between oil and air* : 40 gradi



Appare evidente che il modello che meglio si adegua alle specifiche il nostro CSL 2; Procediamo all'analisi dei diagrammi specifici dello scambiatore identificato. ***From the previous diagram it's clear that the best cooler will be the air/oil one CSL2; you can proceed with the looking of specific diagrams of this particular model!***

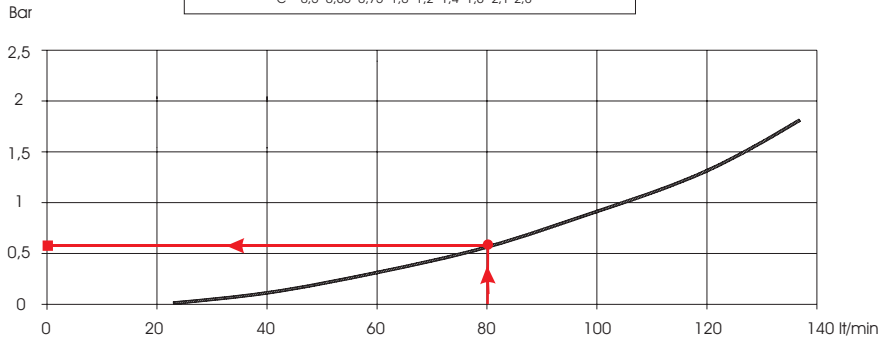
THERMIC EFFICIENCY



PRESSURE DROP

In order to know different viscosity , pleasemultiply temp.oil x correction facta

CST	10	15	20	30	40	50	60	80	100
C	0,5	0,65	0,75	1,0	1,2	1,4	1,6	2,1	2,8



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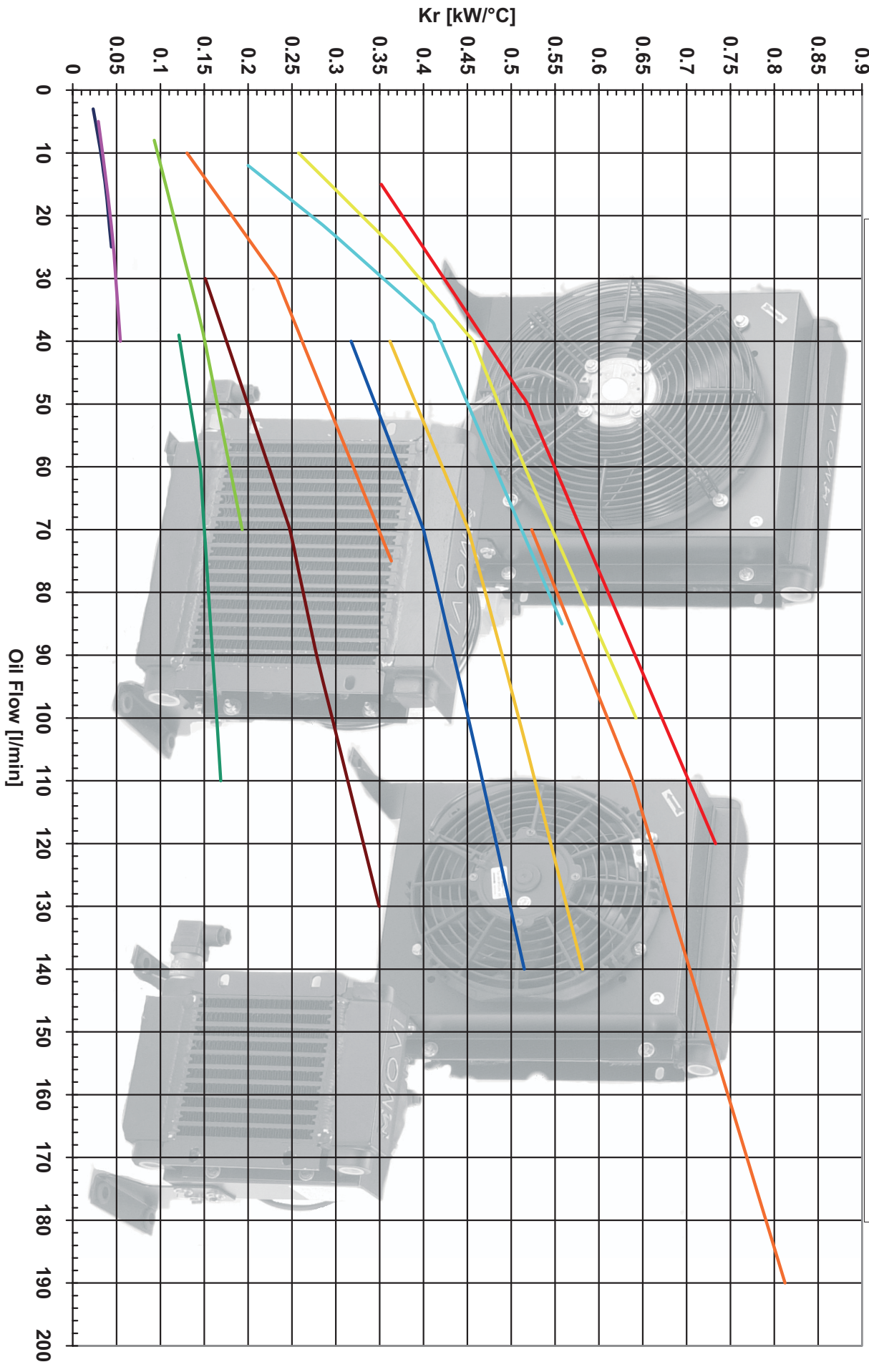
PERFORMANCE DIAGRAM OF AIR / OIL HEAT EXCHANGER SERIES CSL



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